Questions

A 65-year-old man with LUTS and an AUA Symptom Score of 18 is treated with terazosin. Six months later, he develops hypertension. Which antihypertensive drug is contraindicated:

hydrochlorothiazide.

verapamil.

metoprolol.

losartan.

enalapril.

B

A thorough medical history, including an assessment of current medications is imperative when starting patients on alpha-blocker therapy. While several studies have demonstrated the safety of terazosin, and that typically blood pressure is only lowered in hypertensive patients, the concomitant use of terazosin and calcium channel blockers, especially verapamil is dangerous and can precipitate severe hypotension. The use of an alpha-blocker and a diuretic, beta-blocker, or ACE-inhibitor has not been associated with the same risk of hypotension.

Kirby R, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 87, pp 2780-2782.

Questions

A very tall 24-year-old man with primary infertility has slight gynecomastia and disproportionately long arms. He has a normal male pattern of hair distribution in his pubic area and axillae. His testes are 3 ml and firm bilaterally. His sperm concentration is 0.5 million/ml. Genetic analysis will most likely show:

microdeletions of the Y chromosome.

46, XX karyotype.

47, XXY karyotype.

50%25 46, XY; 50%25 47, XXY karyotype.

45, XO karyotype.

D

Genetic abnormalities commonly associated with severely abnormal sperm production include microdeletions of the Y chromosome, classic Klinefelter's syndrome, or mosaic Klinefelter's syndrome. A 45,XO karyotype is associated with Turner's syndrome (gonadal dysgenesis) in phenotypic women. Men with microdeletions of the Y chromosome typically have a normal appearance. The phenotypic appearance of this patient is most consistent with Klinefelter's syndrome. Men with classic Klinefelter's syndrome are almost always azoospermic, suggesting that this patient most likely has a mosaic form of this syndrome.

Lanfranco F, Kamischke A, Zitzmann M, Nieschlag E: Klinefelter's syndrome. LANCET 2004;364(9430):273-283.

Questions

A 64-year-old man with clinical T1c Gleason 6 prostate cancer and PSA of 5.0 ng/ml desires active surveillance. He has a microscopic focus of cancer in one of 12 biopsy cores. His prostate gland size is estimated to be 50 ml. The next step is:

repeat biopsy only for rising PSA.

repeat biopsy within one year.

antibiotics, repeat PSA.

treat prostate cancer.

hormonal ablation.

B

In patients desiring active surveillance, it is important to determine if the patient is truly low risk in as accurate a fashion as possible. This patient has low PSA, low stage, favorable Gleason score, and small volume disease. By most established clinical criteria, he meets the guidelines for minimal disease appropriate for surveillance. Immediate repeat biopsy is considered advisable because it will confirm the favorable pathologic factors of the first biopsy, and it has been shown to predict the likelihood of progression in the series by Patel, et al. In this series, actuarial progression free survival with 83%25 in men without abnormal findings on repeat biopsy compared to 43%25 in those with abnormal findings on repeat biopsy. In individuals with small volume disease, serum PSA measurements alone are not adequate to follow disease progression on active surveillance. As such, using antibiotics to drive the PSA down will not improve the performance characteristics of PSA in assessing risk. Annual biopsy will be required after immediate repeat biopsy.

Eastham JA, Scardino PT: Expectant management of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 96, pp 2951-2955.

Patel MI, DeConcini DT, Lopez-Corona E, et al: An analysis of men with clinically localized prostate cancer who deferred definitive therapy. J UROL 2004;171:1520-1524.

Questions

The most frequent long-term complication of CIC in men with spinal cord injury is:

VUR reflux.

squamous metaplasia.

bladder calculi.

chronic pyelonephritis.

urethral stricture.

E

CIC is the preferred bladder management in most spinal cord injury patients and is associated with a low incidence of VUR, squamous metaplasia of the bladder lining, bladder calculi, and pyelonephritis. However, local trauma to the urethral wall induced by repeated introduction of the catheter has been reported. Strictures and false passages seem to appear after several years in some male patients.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, pp 2294-2295.

Questions

A 47-year-old man underwent a vasectomy 16 years ago at the time of a hernia repair and recently married a 33-year-old woman who has never attempted to become pregnant. He has two grown children and now desires more children. Antisperm antibody titers are positive. The factor that portends a poor outcome after vasectomy reversal is:

partner age > 30 years.

previous inguinal surgery.

partner has never been pregnant.

presence of antisperm antibodies.

long interval since vasectomy.

E

A gradual decline in success rates is seen with increasing intervals of obstruction, with pregnancy rates dropping below 50%25 after nine years. Delivery rates also decline significantly when the age of the partner is over 35 years. One study suggested that vasectomy at a younger age correlates with higher success rates, but

this finding has yet to be validated by others. The significance of a positive antisperm antibody (ASA) status is controversial, but the high rate of successful vasectomy reversals despite the high incidence of ASA after vasectomy suggests that ASA status may not be a reliable prognostic factor.

Hagler HM, Rotman M: Predictive parameters for microsurgical reconstruction. UROL CLIN N AM 2002;29:913-919.

Questions

A 35-year-old woman with T8 paraplegia underwent augmentation ileocystoplasty for urinary incontinence unresponsive to CIC and antimuscarinics. Post-operatively, she has persistent incontinence unresponsive to antimuscarinics. Her urodynamic evaluation is demonstrated in the exhibit. The next step is:

creating an ileovesicostomy.

continent catheterizable urinary diversion.

inserting an additional bowel patch into the cystoplasty.

placing a pubovaginal sling.

bladder neck closure and appendicovesicostomy.

C

This patient suffers from post-augmentation cystoplasty incontinence because of intermittent overactive contractions of the augmented bladder as seen in the urodynamic study. This can occur despite adequate detubularization of the bowel or from inadequate bivalving of the bladder. When antimuscarinics fail, the best treatment is inserting an additional patch of bowel into the cystoplasty. There is no evidence of urethral insufficiency on the urodynamic study as there is no leakage with Valsalva maneuvers. Therefore, procedures to either augment urethral resistance or close the urethra are not indicated. There is no indication to perform a supravesical urinary diversion since the lower urinary tract is still useful and can be further rehabilitated.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, pp 3680-3681.

Questions

A 67-year-old man has an AUA Symptom Score of 25 and a bother score of 5. He has no history of urinary retention, infections or stones, and has normal renal function. DRE reveals a 25 g benign prostate. The next step is:

observation.

alpha-blocker.

5-alpha-reductase inhibitor.

alpha-blocker and 5-alpha-reductase inhibitor.

photovaporization of the prostate.

B

This patient has a high symptom problem index with a significant bother score, therefore watchful waiting is not appropriate, and he should be offered intervention. A VA study of 1229 patients randomized to placebo, alpha-blocker therapy, finasteride, or combination therapy with alpha-blockers plus finasteride showed the superiority of alpha-blocker therapy alone in improvement of symptoms and peak flow rate. Other than an additional reduction in prostate volume, combination therapy with finasteride did not provide significantly more symptom relief. Combination therapy may be beneficial in a man with an enlarged prostate, however, there is no indication that the prostate is enlarged in this individual and, therefore, the initial cost and potential adverse effects of combination therapy are not justified in this untreated patient. This patient has no absolute indication for prostatectomy and should be initially offered medical therapy with alpha-blockers. Medical therapy of prostatic symptoms has shown a reduction in BPH progression with combination therapy, though this question focuses on symptomatic relief in a patient without significant prostatic enlargement, which would be best achieved by alpha-blockade alone.

Roehrborn CG, McConnell JD, Barry MJ, et al: Guideline on the management of benign prostatic hyperplasia. BENIGN PROSTATIC HYPERPLASIA GUIDELINE. AUA Education and Research, 2003, p 24.

Kirby R, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 87, p 2787, 2796-2797.

Questions

A 32-year-old man has azoospermia and semen volume of 3.1 ml. Both testes are 5.0 cm in longitudinal axis, and FSH is 3.8 mIU/ml (normal 2 - 12 mIU/ml). The next step is:

scrotal ultrasound.

clomiphene citrate.

testis biopsy.

scrotal exploration for microsurgical reconstruction.

percutaneous epididymal sperm aspiration.

D

When testis longitudinal axis is > 4.5 cm and FSH is < 7.6 mIU/ml, 96%25 of azoospermic men will have

obstructive azoospermia. Scrotal exploration for reconstruction may be directly undertaken without the need for a testis biopsy. Because the likelihood of epididymal obstruction requiring epididymovasostomy is high, percutaneous epididymal sperm aspiration should not be performed in these patients, as the epididymis may be permanently damaged preventing subsequent epididymovasostomy. Scrotal ultrasound is not sensitive enough to identify vasoepididymal obstruction, and clomiphene citrate would not be helpful in a patient with obstructive azoospermia.

Schoor RA, Elhanbly S, Niederberger CS, Ross LS: The role of testicular biopsy in the modern management of male infertility. J UROL 2002;167:197-200.

Questions

A 29-year-old G2P2 woman with episodic hypertension is 28 weeks pregnant. She is now found to have a 4 cm left adrenal pheochromocytoma. The next step is alpha-blockade with phenoxybenzamine and:

immediate laparoscopic adrenalectomy.

immediate open adrenalectomy.

elective adrenalectomy following term vaginal delivery.

adrenalectomy at time of caesarean section after fetal maturity.

adrenalectomy at time of vaginal delivery after fetal maturity.

D

It is clear that prompt surgical resection is the only effective treatment of pheochromocytoma. The one accepted exception is a pheochromocytoma in a late term pregnancy. In this setting, the patient should be treated with alpha-adrenergic blockade with phenoxybenzamine until the fetus has reached maturity to manage the hypertension. At this point, she should undergo caesarean section and tumor resection in one operation. The patient should not undergo the stress of vaginal delivery.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1863.

Questions

A 54-year-old man with a rising PSA after radiation therapy elects androgen deprivation therapy. His PSA is 8.4 ng/ml, and his bone scan is negative. Bone mineral density will be best preserved with:

GnRH agonist.

GnRH antagonist.

intermittent GnRH agonist.

bilateral orchiectomy with calcium and Vitamin D.

diethylstilbestrol.

E

Osteopenia and osteoporosis are recognized as major long-term complications of hormonal deprivation therapy. As men age, they have a pre-existing risk of osteopenia. This is increased upon hormonal deprivation due to the loss of circulating estrogens. In men, the sole source of estrogen is peripheral conversion of testosterone by aromatase. In men who receive pharmacologic or surgical castration, loss of testosterone results in loss of estrogen. Use of estradiol in men results in loss of endogenous testosterone through suppression of the hypothalamic-pituitary axis. As such, men receiving estradiol will have suppression of endogenous estrogen production, but the exogenously administered estrogen preserves bone density.

Ross RW, Small EJ: Osteoporosis in men treated with androgen deprivation therapy for prostate cancer. J UROL 2002;167:1952-1956.

Scherr D, Pitts WR, Vaughan, ED Jr.: Diethylstilbestrol revisited: Androgen deprivation, osteoporosis, and prostate cancer. J UROL 2002;167:535-538.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, p 3082.

Questions

A 35-year-old man is a heterozygous carrier of the delta-F508 mutation. Prior to testing his wife, his chance of having a child with cystic fibrosis is:

1 in 2.

1 in 4.

1 in 25.

1 in 100.

1 in 625.

D

Cystic fibrosis is an autosomal recessive disease with a carrier frequency of 1 in 25. Cystic fibrosis mutations may be severe or mild. Accounting for approximately 70%25 of cystic fibrosis alleles, the delta-F508 genotype is the most common severe mutation, and results from a three base pair deletion in exon 10 of the cystic fibrosis gene. If both alleles carry the severe mutation, offspring will be affected with the systemic and pulmonary form of cystic fibrosis. Without a priori knowledge of his partner's genotype, the probability of offspring with cystic fibrosis born to a heterozygous carrier is 1:25 x 1:4 = 1:100.

Claustres M:

Molecular pathology of the CFTR locus in male infertility. REPROD BIOMED ONLINE 2005;10:14-41.

Jaffee T, Oates RD: Genetic aspects of infertility, in Lipshultz LI, Howards SS (eds): INFERTILITY IN THE MALE, ed 3. St. Louis, Mosby Year-Book Inc, 1997, chap 15, p 293.

Questions

A CT scan demonstrates a new 4 cm nodule in the left adrenal gland of a 58-year-old man who underwent a right radical nephrectomy for RCC eight years previously. He has mild hypertension that is well-controlled medically and is otherwise healthy. An MRI scan demonstrates the adrenal nodule to be isointense with the liver on T2-weighted images. The next step is:

clonidine suppression test.

MIBG scan.

needle biopsy.

adrenalectomy.

repeat CT scan in six months.

D

Many patients with RCC manifest asynchronous metastases which when solitary and resectable are best managed surgically, hence adrenalectomy is the best choice. This approach has been associated with prolonged disease-free survival, especially when the interval between the initial diagnosis and metastasis is greater than one year. Neither the clinical nor radiographic data in this case are suggestive of pheochromocytoma, which would be expected if the nodule was hyperintense compared to the liver on T2-weighted images. A benign adrenal adenoma is possible, but in view of the history of RCC it is a diagnosis of exclusion. Waiting six months to determine if the lesion has change radiographically places the patient at risk for progressive metastatic disease. The malignant potential of adrenal tumors is notoriously difficult to determine on a needle biopsy.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1631-1632.

Questions

A 65-year-old man on warfarin develops urinary retention secondary to BPH. He has failed treatment with tamsulosin. His cardiologist recommends that warfarin not be discontinued. The next step is:

TUNA.

finasteride.

laser prostatectomy.

TUIP.

transurethral electrovaporization of the prostate.

C

This patient requires a procedure that can eliminate the prostatic obstruction yet allow him to continue his anticoagulation therapy. Of the options provided, non-contact laser prostatectomy, either non-contact or holmium laser enucleation, is able to accomplish these goals. TUNA and TUMT are generally indicated for men with moderate to severe symptoms of BPH who desire minimally invasive treatment. TUIP and transurethral electrovaporization of the prostate are contraindicated in men who are being treated with systemic anticoagulation.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2820-2829.

Questions

A 27-year-old woman with irritable bowel syndrome passes a 4 mm calcium phosphate calculus. 24-hour urine collection reveals low urinary citrate. She refuses pharmacologic therapy. Treatment includes oral hydration and:

limit tea.

drink milk.

drink lemonade.

limit animal protein.

limit carbonated water.

C

Hypocitraturia is often associated with chronic diarrheal states. While the threshold for normal urinary citrate is controversial, a 24-hour urinary citrate level less than 320 mg generally identifies hypocitraturia. For a patient who refuses pharmacologic therapy, citrus beverages such as lemonade and orange juice increase urinary volume and citrate excretion. Carbonated water may also increase urinary citrate levels. Milk products may be useful in hyperoxaluria associated with chronic diarrhea. Tea is high in oxalate, and may be involved in calcium oxalate lithiasis. Protein intake increases urinary calcium, oxalate and uric acid excretion, and is not specifically involved in citrate excretion.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S

UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1412.

Questions

A 62-year-old man with Gleason 6, T1c adenocarcinoma of the prostate opts for radical prostatectomy. PSA is 15 ng/ml, and bone scan reveals two areas of intense abnormality in the right hemi-pelvis. Plain films are normal. The next step is:

Prostascint scan.

bone biopsy.

MRI scan of pelvis.

GnRH agonist.

radical prostatectomy.

C

The clinical scenario is unlikely to be associated with bone metastasis, but the abnormal bone scan in this area should be evaluated. Plain films carry a low sensitivity for the detection of bone metastasis, and as such, their main purpose is for the detection of other explanations for the bone scan findings such as fracture or degenerative disease. In the event the plain films are normal, the bone scan findings remain unexplained, and further evaluation is warranted. Bone biopsy is too invasive of a test given the low likelihood of metastasis. MRI scan is the most sensitive radiologic test to screen for bone metastasis after radionucleotide imaging. Lesions on plain radiography must involve at least 50%25 bone loss to be visible.

Montie JE: Staging systems for prostate cancer, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY, ed 2. Philadelphia, Lippincott Williams %26 Wilkins, 2000, chap 39, pp 673-679.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2912.

Questions

A 27-year-old woman has passed multiple calcium phosphate stones. The pH of an early morning urine is 6.5. Serum electrolytes reveal Na 140 mEq/l, K 3.4 mEq/l, Cl 112 mEq/l, and CO₂ 20 mEq/l. The next step is:

serum aldosterone.

serum renin.

serum parathormone.

24-hour urine citrate.

24-hour urine potassium.

D

RTA can be caused by a variety of disorders that interfere with the ability of the renal tubule to secrete hydrogen ion. There are two major types; type 1, classic or distal; and type 2, proximal. Type 1, distal RTA, occurs due to a defect in the distal nephron. The normal kidney can respond to various stimuli by excreting sufficient free hydrogen to produce a minimum urine pH of 4.0 to 4.4. Inability of the kidney to acidify urine to a pH of less than 5.4 is a sign of distal RTA. Most patients with this disorder have a urine pH greater than 6. Patients with distal RTA have a hypokalemic, hyperchloremic metabolic acidosis. These patients are prone to urolithiasis and can develop nephrocalcinosis. Low urinary citrate in this setting is diagnostic.

Herrin JT: Renal tubular acidosis, in Barratt TM, Avner ED, Harmon WE (eds): PEDIATRIC NEPHROLOGY, ed 4. Baltimore, Lippincott Williams %26 Wilkins, 1999, chap 33, pp 573-574.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1380.

Questions

An 18-year-old girl has primary amenorrhea and recurrent UTIs. Her pelvic ultrasound shows a large cystic lesion. CT imaging is shown in exhibit 1. The most frequent associated condition is:

renal agenesis.

primary megaureter.

ectopic ureter.

multicystic dysplastic kidney.

UPJ obstruction.

A

This patient has a hematocolpos due to vaginal obstruction, the Mayer-Rokatanski-Kuster-Hauser syndrome which occurs in 1:4000 female births. This syndrome is composed of vaginal agenesis or absence with a rudimentary uterus, normal ovaries, and normal external genitalia. Absence or agenesis of the vagina is a developmental error of the ureterovaginal canal or the vaginal plate with failure of mullerian duct fusion. Renal anomalies are common with over one third of patients noted to have renal agenesis, ectopia or fusion abnormalities. Skeletal anomalies have been reported in 12%25 of girls and usually involve the spine, limbs or ribs. Diagnosis of this condition is made most often at the time of puberty in association with amenorrhea.

Occasionally, it is noted in the neonatal period when evaluating a pelvic mass.

Hensle TW: Genital anomalies, in Gillenwater JY, Grayhack JT, Howards SS, Mitchell ME (eds): ADULT AND PEDIATRIC UROLOGY, ed 4. Philadelphia, Lippincott, Williams and Wilkins, 2002, chap 52A, pp 2487-2500.

Questions

A 56-year-old man with a palpable nodule on DRE and a PSA of 15.2 ng/ml has Gleason 8 prostate cancer. The administration of eight months of neoadjuvant hormone ablation therapy prior to radical retropubic prostatectomy has been shown to result in:

prolonged biochemical-free survival.

prolonged overall survival.

decreased local recurrence.

decreased positive margins.

decreased seminal vesicle involvement.

D

This patient's tumor profile is most consistent with locally advanced disease. Locally advanced prostate cancer has been proven difficult to treat and is likely best managed with multi-modal therapy. Numerous authors have suggested that neoadjuvant hormone ablation therapy might improve outcomes in these patients. Unfortunately, all of the seven randomized clinical trials (consisting of over 1400 patients) that compared three months of neoadjuvant hormone therapy to placebo prior to prostatectomy failed to show any survival advantage in the neoadjuvant group. In fact, the only difference noted between the two groups was that neoadjuvant patients had a lower positive margin rate that did not translate into a biochemical-free, disease-specific or overall survival advantage with follow-up of up to six years. A recent randomized clinical trial from Canada compared 3 vs. 8 months of neoadjuvant therapy and found no difference between the arms.

Klein EA, Mahadevan A, Kupelian P, Dreicer R: Management of locally advanced prostate cancer. AUA UPDATE SERIES 2004;23(32):258-263.

Questions

A 26-year-old with a spinal cord injury undergoes pressure flow urodynamics. During filling, he complains of severe headache, diaphoresis, and facial flushing. The spinal cord lesion most likely responsible for this phenomenon is:

complete and located below S1.

complete or incomplete and located between L1 and L5.

incomplete and located between C1 and T6.

incomplete and located between T6 and L5.

complete and located above T6.

E

Autonomic dysreflexia is characterized by acute hypertension, bradycardia, severe headache, vasoconstriction below the lesion, and vasodilation above the lesion. It is due to exaggerated sympathetic discharge in response to stimuli below the level of the lesion. This most likely occurs in spinal cord injured patients with complete lesions above T6, the location of sympathetic ganglia. It is an emergency and must be treated immediately by removal or reversal of the stimulus. The most common stimulus is distension of a hollow viscus, such as during urodynamic testing.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2025.

Questions

Currently manufactured extracorporeal shock wave lithotriptors are associated with less patient discomfort due to increased aperture size of the shock wave generation/focusing system. This design change also produces a:

smaller focal volume.

lower focal pressure.

larger focal volume.

higher focal pressure.

shorter rise time.

A

A reduction in the focal volume is a geometric result of enlarging the aperture of the shock wave generator. Newer generation lithotriptors cause little pain, but have a small focal volume and high focal pressure. The higher retreatment rates with newer lithotriptors may be due, in part, to the smaller focal volume. Accurate placement of the stone in the focus is critical with these lithotriptors.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1472.

Questions

The most frequent post-operative complication of partial nephrectomy is:

bleeding.

urinary fistula.

renal failure.

UTI.

renal infarction.

B

In a recently reported large series of partial nephrectomies, urinary fistula was reported as the most frequent complication (17%25), followed by renal failure, infection, bleeding, and vascular thrombosis. Fistulas occurred more frequently in larger, centrally located tumors and those removed with an ex vivo approach. UTI and renal infarction are infrequent complications. In more contemporary series of laparoscopic partial nephrectomies, urinary fistula is still the most common complication.

Novick AC: Open surgery of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 50, p 1749.

Questions

A 38-year-old woman with a T6 spinal cord injury is treated with an indwelling catheter and oxybutynin for five years. She has severe urinary incontinence around the catheter and a patulous urethra at cystoscopy. Videourodynamics performed with a urethral catheter balloon occluding the urethra shows detrusor overactivity, a bladder capacity of 75 ml, and bilateral grade IV VUR. The next steps are:

antimuscarinics and suprapubic tube placement.

antimuscarinics, urethral sling placement, and CIC.

antimuscarinics, collagen injection, and CIC.

urethral sling placement, augmentation cystoplasty, and CIC.

ileovesicostomy.

D

A T6 spinal cord injury would be associated with severe detrusor overactivity and detrusor sphincter dyssynergia, in most instances. A suprapubic tube would not help with the stress incontinence that has

developed due to sphincteric damage from the long-standing urethral catheter. The patient already has severe detrusor overactivity and reflux, despite antimuscarinic use. Therefore, a sling alone will still likely be associated with detrusor overactivity-induced leakage, and may intensify the risk of upper tract damage. Ileovesicostomy would likely be associated with ongoing urethral leakage, again due to the damaged sphincter. Collagen may help improve outlet resistance, but performing CIC repeatedly through the injected area will likely render any beneficial effect meaningless as the collagen gets molded due to chronic catheterization. An augment, coupled with a sling will take care of the detrusor overactivity, and the damaged sphincteric unit. The patient would need to perform CIC.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, p 2291, 2293.

Questions

A 32-year-old man with inflammatory bowel disease has passed two calcium oxalate stones. 24-hour urine collection reveals elevated oxalate. The treatment is:

restrict oxalate.

restrict sodium.

calcium.

thiazides.

potassium citrate.

C

Enteric hyperoxaluria is commonly associated with inflammatory bowel disease or short-gut syndrome. Malabsorption increases the colonic permeability of oxalate by causing fat and bile to bind to intraluminal calcium, leaving oxalate unbound and free to traverse the colonic epithelium. Restricting oxalate is generally insufficient as the cause is not an overabundance of oxalate, and compliance is difficult for regimens intending to eliminate all oxalate sources. Oral calcium binds to the free oxalate and prevents its absorption.

Parks JH, Asplin JR, Coe FL: Patient adherence to long-term medical treatment of kidney stones. J UROL 2001;166:2057-2060.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1422.

Questions

A 64-year-old man undergoes 12 weekly bladder instillations of BCG after TURBT of a high-grade stage T1(A) TCC. Six weeks after receiving his last treatment, he undergoes a cystoscopy and CT urogram which are normal. However, a voided cytology shows highly atypical cells suspicious for malignancy. The next step is:

bilateral ureteral catheterization and barbotage for cytology.

cold cup biopsy of the prostatic urethra.

brush biopsy of both upper collecting systems.

repeat cystoscopy with bladder biopsy and retrograde pyelography.

administration of monthly BCG instillations for one year.

D

Almost all persistently positive cytologies in the first six months after BCG treatment for T1 or Tis disease are due to disease in the bladder, and in this setting an extensive search for extravesical disease is not indicated. In addition, cytology may continue to revert to normal for three months after the last BCG treatment. Repeat cystoscopy, upper tract evaluation, and bladder biopsy is the most effective way to detect a recurrence. Disease can also recur in the prostatic urethra; however, transurethral bladder biopsy is the most effective means by which to make the diagnosis.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2447.

Questions

Aldosterone secretion is stimulated by:

hyperkalemia and hyponatremia.

hyperkalemia and hypernatremia.

hypokalemia and hyponatremia.

hypokalemia and hypernatremia.

ACTH.

A

Aldosterone production and secretion are regulated largely by angiotensin II and by changes in the plasma concentrations of sodium and potassium. The role of ACTH in the control of aldosterone secretion is generally believed to be only permissive, subservient to the renin-angiotensin system and potassium. Direct infusion of potassium and depletion of body sodium are both potent physiologic stimuli for the secretion of aldosterone.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9.

Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1821.

Questions

For patients with a 1 cm proximal ureteral stone, placement of an internal stent at the time of SWL will result in:

a higher stone free rate.

a lower complication rate.

less hematuria.

increased irritative voiding symptoms.

reduced analgesic requirements.

D

A randomized study demonstrated that stent placement at the time of SWL in patients with 1-2 cm solitary renal stones or proximal ureteral calculi less than 2 cm did not improve stone free or retreatment rates, lessen pain or hematuria. However, stent insertion was associated with an increase in irritative voiding symptoms.

Chandhoke PS, Barqawi AZ, Wernecke C, Chee-awai RA: A randomized trial of ureteral stents for extracorporeal shock wave lithotripsy of solitary kidney or proximal ureteral stones. J UROL 2002;167:1981-1983.

Preminger GM, Tiselius H-G, Assimos DG, et al. 2007 Guideline for the management of ureteral calculi. J Urol 2007; 178(6):2418-2434.

Questions

A 42-year-old woman undergoes TURBT and random bladder biopsies for a solitary tumor at the dome of the bladder. Pathology reveals a high-grade T2 TCC at the dome and CIS on the left lateral wall. Metastatic work-up is negative. The next step is:

intravesical BCG therapy.

intravesical BCG therapy followed by repeat TURBT.

partial cystectomy.

partial cystectomy followed by intravesical BCG.

radical cystectomy.

E

The standard of care for muscle-invasive bladder cancer is neo-adjuvant chemotherapy followed by radical cystectomy. There are, however, some rare cases where partial cystectomy may be a reasonable option. These occur in patients with good capacity bladders, solitary tumors and location in area that allows a 1- to 2-cm margin of resection, such as the dome. In the case described here, the patient also has CIS elsewhere in the bladder, which is an absolute contraindication to partial cystectomy. Intravesical BCG, while useful in treating CIS, is not adequate treatment for a muscle-invasive lesion.

Nieh PT, Marshall FF: Surgery of bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 78, p 2503.

Questions

A two-year-old girl has abdominal tenderness 24 hours after minor flank trauma. Her initial hematocrit was 33%25 and decreased to 28%25. She remains hemodynamically stable. Her urine is clear. Images from an abdominal CT scan without and with contrast are shown in exhibits 1 and 2. Chest x-ray is normal. The best definitive management is:

observation.

transfusion of packed RBCs.

renal arteriography.

flank exploration and repair.

nephrectomy.

E

The CT images show a complex mass of the left kidney. This is not simply a renal fracture. Renal tumors, particularly a Wilms' tumor are more susceptible to injury. The child remains stable and therefore does not need to be transfused. A renal arteriogram is premature. This is not a simple renal fracture and therefore exploration and repair is not warranted. The child will need a nephrectomy once stabilized in order to treat her tumor.

Casale AJ: Urinary tract trauma, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY, Philadelphia, WB Saunders Co, 2001, chap 59, pp 923-943.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, p 3929.

Questions

A 42-year-old man has severe right flank pain and microscopic hematuria. CT scan demonstrates a 5 mm distal ureteral calculus and forniceal extravasation. Following adequate pain control, the next step is:

SWL.

ureteral stent.

ureteroscopy.

observation.

percutaneous nephrostomy.

D

Forniceal extravasation, noted during CT scan, often occurs in the presence of a small, obstructing ureteral calculus. Urine extravasates from a ruptured caliceal fornix into the renal sinus where it is absorbed by lymphatics. Usually, intervention is not necessary except when the urine is infected, the obstruction complete or if the pain is uncontrollable. Moreover, if the calculus is large and not likely to pass, intervention may also be necessary. In this case, the patient has an excellent chance that the stone may pass spontaneously. Therefore, observation initially is warranted.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1451.

Questions

A 63-year-old man who underwent radical cystectomy and ileal neobladder diversion for TCC of the bladder two years earlier has a positive NMP22 urine test and negative voided urine cytology. CT urogram and cystoscopy are both normal. The next step is:

surveillance.

urethral washings for cytology.

random urethral biopsies.

bilateral ureteral washings for cytology.

bilateral ureteroscopy.

A

The NMP22 test is a FDA-approved bladder tumor marker for both diagnosis and surveillance. In patients being followed for bladder cancer with their native bladder intact, it has been shown to have superior sensitivity to urine cytology at least for low-grade tumors. However, it is not useful in patients with urinary diversion due to a high false positive rate. In this example, voided urine cytology and upper tract imaging, both of which are

part of routine post-operative surveillance are negative. Given that the patient also has a negative urethra by cystoscopy, no further work-up is needed and routine post-operative cancer surveillance should be continued.

Greene KL, Konety, B: Urinary markers for bladder cancer. AUA UPDATE SERIES 2007, vol 26, lesson 33, pp 326-337.

Questions

Non-adrenergic, non-cholinergic contraction of detrusor smooth muscle is mediated primarily by:

nitric oxide.

vasoactive intestinal polypeptide (VIP).

adenosine triphosphate (ATP).

cyclic guanosine monophosphate (cGMP).

enkephalins.

C

Postganglionic parasympathetic neurons release acetylcholine, which activates muscarinic cholinergic receptors (primarily M2 and M3) on the detrusor and elicits a contractile response. Preganglionic and postganglionic neurons also contain purines such as adenosine triphosphate (ATP) and adenosine which produce depolarization of bladder smooth muscle and contraction by stimulation of purinergic receptors. Nitric oxide, cGMP, VIP, and enkephalins either have no effect on bladder contraction or are inhibitory.

Yoshimura N, Chancellor MB: Physiology and pharmacology of the bladder and urethra, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 56, p 1951.

Questions

A 47-year-old man with a 2.2 x 1.4 cm branched calculus undergoes PCNL through a single supracostal access. Operative time is three hours, and estimated blood loss is 400 cc. A renal pelvic perforation occurs toward the end of the procedure confirmed by mild extravasation of contrast. No residual stones are visualized fluoroscopically. The factor that precludes "tubeless" PCNL is:

size of the stone.

length of the procedure.

site of percutaneous access.

perforation of the renal pelvis.

amount of blood loss.

D

Tubeless PCNL is safe if a limited number of percutaneous accesses are utilized, the stone burden is moderate, bleeding is not excessive, there is a reasonable expectation of a stone free state and no significant collecting system perforation occurs. In this case, neither the size of the stone, the length of the procedure or the blood loss would preclude a tubeless procedure. Likewise, supracostal access is not a contraindication for tubeless PCNL. However, the renal pelvic perforation is most safely handled with percutaneous drainage.

Limb J, Bellman GC. Tubeless percutaneous renal surgery: Review of first 112 patients. UROL 2002;59:527-531.

Questions

A 45-year-old man undergoes a partial cystectomy for urothelial cancer at the dome of the bladder. Post-operative pathology reveals pT3a disease with positive surgical margins within the perivesical fat. Post-operative CT scan is negative. The next step is:

surveillance.

intravesical BCG followed by surveillance.

bladder-sparing chemoradiation.

radical cystoprostatectomy.

chemotherapy followed by radical cystoprostatectomy.

E

Partial cystectomy is occasionally advocated for patients with muscle invasive bladder cancer at the dome of the bladder. This approach must be used selectively however and is probably inadequate in patients with highly aggressive tumors, like the case described here. He has locally advanced (pT3) disease with positive surgical margins, which portends a worse prognosis. Given this, surveillance alone is not appropriate, nor is intravesical BCG, as the patient has extravesical disease. While bladder sparing protocols are sometimes employed in selected patients, a young healthy patient with the poor prognostic factors warrants aggressive management with extirpative surgery. With current neobladder diversion techniques, his quality of life can be maintained following cystectomy. The major issue is whether this patient will benefit from additional chemotherapy and whether this should be given in the adjuvant or neoadjuvant setting. There is level I randomized clinical trial evidence that neoadjuvant chemotherapy followed by cystectomy improves survival when compared to cystectomy alone. The patient already has pathologically confirmed T3 disease, the next step is to initiate neoadjuvant chemotherapy followed by cystectomy.

Schoenberg MP, Gonzalgo ML: Management of invasive and metastatic bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters

CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 77, p 2468.

Questions

A thirteen-year-old boy with testicular pain has a scrotal ultrasound shown in the exhibit. Tumor markers are normal. The next step is:

serial self-examinations.

testicular biopsy.

antibiotic therapy.

scrotal exploration.

radical orchiectomy.

A

The ultrasound demonstrates testicular microlithiasis, a lesion of unknown significance in children. Because it has been associated with tumors in adult testes, serial self-examinations are recommended, although the risk is unknown, and possibly no higher than the general population.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3900-3901.

Middleton, WD, Teefey, SA, Santillan, CS: Testicular microlithiasis: Prospective analysis of prevalence and associated tumor. RAD 2002;224:425.

Questions

A 48-year-old-man with prior stones has a mildly symptomatic 3 mm ureteral stone with hydronephrosis confirmed by CT scan one month ago. The next step is:

CT scan within one week.

CT scan in one month.

stent placement.

ureteroscopy and stone extraction.

SWL.

A

Nearly all ureteral stones less than 4 mm will pass by 40 days. Further assessment of this stone is indicated soon as sufficient time for stone passage has been allowed. There is no definitive evidence that a procedure is indicated at this stage.

Miller OF, Kane CJ: Time to stone passage for observed ureteral calculi: a guide for patient education. J UROL 1999;162:688-690.

Questions

A 48-year-old woman with diffuse, biopsy-proven CIS receives an initial six week induction course of BCG that is poorly tolerated. She undergoes repeat TURBT at three months, again revealing extensive CIS. The best next step is:

radical cystectomy.

perioperative mitomycin C.

another induction course of full strength BCG.

induction mitomycin C with maintenance.

another induction course of 1/4 strength BCG.

A

Although there is a small chance of additional benefit from time and/or another induction course of BCG, in the situation of BCG-refractory CIS, radical cystectomy is recommended in patients who can undergo surgery. There is a substantial risk to progression and "adverse consequences of delaying cystectomy make this the preferred treatment." This is especially true in this patient who did not tolerate the BCG. Perioperative mitomycin C or induction and maintenance mitomycin C have little efficacy in this situation. There is little data to support reduction to 1/4 strength BCG.

Hall, MC, Chang, SS, Dalbagni, G, et al: Guideline for the management of nonmuscle invasive bladder cancer. J UROL 2007;178:2314-2330.

Questions

A patient with bladder outlet obstruction secondary to BPH has an elevated serum creatinine, bilateral ureteral dilation, and a residual urine of 1200 ml. There is grade III VUR on videourodynamics. The renal function abnormalities and ureteral changes are related to:

compression of the ureter at the ureterovesical junction.

the development of high grade VUR.

increased urethral resistance.

high voiding pressure.

sustained high filling pressure.

E

Renal and ureteral impairment in BPH are related to high pressure chronic retention. High voiding pressures if not sustained for long periods do not usually induce ureteral changes nor renal functional impairment. While compression of the ureter at the ureterovesical junction might impair ureteral urine delivery to a degree, sustained bladder pressure elevations are required for the upper tract abnormalities described. VUR also results from the high pressures.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1198.

Questions

On the first post-operative day after PCNL, an antegrade nephrostogram shows contrast filling the right colon as well as the right kidney. The next step is:

remove nephrostomy tube.

withdraw nephrostomy tube into colon and place internal ureteral stent.

replace nephrostomy tube with CT-guidance.

percutaneous retroperitoneal drain.

colostomy.

B

Colonic injury occurs during PCNL when the colon occupies a retro-renal location. Since the injury is typically retroperitoneal, withdrawal of the nephrostomy tube into the colon and placement of an internal ureteral stent provides maximum drainage of the kidney and colon and allows the colonic and renal injuries to heal within a few days to a week.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1548.

Questions

Following TURBT for papillary TCC of the bladder, peri-operative instillation of mitomycin C:

is unnecessary for patients with a small, solitary, low grade tumor.

is most effective in acidic urine.

must be given within 24 hours of the resection.

must be followed by an induction course of intravesical therapy.

should be delayed for 24 hours if an extraperitoneal perforation occurs.

C

A meta-analysis of seven randomized trials comprising nearly 1500 patients with Ta-T1 bladder cancer with a median follow up of 3.4 years has demonstrated that one immediate instillation of chemotherapy after TURBT results in a 40%25 reduction in tumor recurrence. Patients with single and multiple tumors benefit and tumor size did not stratify patients who benefited. The timing of instillation appears to be critical. In all studies, the instillation was given within the first 24 hrs. One study has demonstrated that if the instillation is given after 24 hours, the risk of recurrence increases 2-fold. In terms of efficacy, no specific drug appears superior. Studies have shown mitomycin C, doxirubicin, epirubicin and thiotepa to be beneficial. Perioperative instillation is contraindicated in the setting of overt or suspected extra or intraperitoneal perforation as severe complications have been reported in that setting. In the meta-analysis, it was determined that approximately 8 patients would require treatment to prevent one recurrence that would translate into a cost effective strategy using any of the commonly available intravesical chemotherapy agents. Mitomycin C is most effective in the setting of alkaline urine.

Sylvester R, Oosterlinck W, van der Meijden A: A single immediate postoperative instillation of chemotherapy decreases the risk of recurrence in patients with stage Ta T1 bladder cancer: a meta-analysis of published results of randomized clinical trials. J UROL 2004;171:2186-2190.

Questions

After six months of therapy with an LH-RH analogue, a man with Stage D adenocarcinoma of the prostate has a serum testosterone of 50 ng/dl. The most likely explanation for this incomplete androgen suppression is:

increased Leydig cell sensitivity to minute amounts of LH.

reflex increase in ACTH.

increased adrenal cortical sensitivity to ACTH.

failure to suppress dehydroepiandrosterone.

peripheral conversion of estrogen into testosterone.

D

LH-RH analogues down regulate pituitary cell LH-RH cell surface receptors and totally block LH release and synthesis. Leydig cells may experience an upregulation of LH receptors, but there is no LH available for binding. The production of dehydroepiandrosterone and androstenedione, the principal adrenal androgens, is regulated by ACTH. Both of these adrenal androgens can be converted to testosterone peripherally but constitute no more than 10%25 of total testosterone. Manipulations of the LH-RH Leydig cell axis do not affect adrenal androgen production. Peripheral conversion of androgens to estrogens is unidirectional.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, p 3089.

Questions

A 22-year-old woman has a blood pressure of 160/110 mm Hg. Her serum potassium is 2.4 mEq/l while her other serum electrolytes are normal. CT scan demonstrates a 2 cm peripheral renal mass with a normal contralateral kidney. Plasma renin activity is 6.4 ng/ml/hr (normal 0.5-1.6 ng/ml/hr). The next step is:

renal angiography.

renal venous renin sampling.

captopril renogram.

radical nephrectomy.

partial nephrectomy.

E

Reninomas are rare renal tumors associated with hypertension, hypokalemia, and a solid small renal mass. The critical test is plasma renin activity that is usually extremely high. Almost all are shown on CT scan as a hypodense mass that is hypovascular. In most cases, it is not necessary to control the renal pedicle and an arteriogram is not mandatory. The patient should be treated with nephron sparing surgery, i.e. resection or partial nephrectomy because these tumors are benign in nature.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1582.

Questions

A seven-year-old boy with a myelomeningocele has failed antimuscarinic therapy and CIC for a non-compliant neurogenic bladder. He undergoes a mechanical bowel prep and receives preoperative antibiotics. Forty-five minutes after starting an enterocystoplasty, he develops acute, severe hypotension. The most likely cause is:

dehydration secondary to bowel prep.

sepsis.

latex allergy.

autonomic dysreflexia.

unrecognized iliac venous compression.

C

Dehydration would usually present at the time of induction of anesthesia. Although sepsis is possible, it is unlikely to be acute. Unrecognized bleeding or pressure on the vena cava are unlikely given the operative exposure. Autonomic dysreflexia is seen in high-level spinal cord injury patients and is associated with hypertension. Increasing numbers of patients with myelodysplasia are allergic to latex. Latex precautions should be considered in all myelomeningocele patients.

Montagnino B: Nursing intervention in pediatric urology, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders, 2001, pp 270-271.

Cremer R, Lorbacher M, Hering F, Engelskirchen R: Natural rubber latex sensitization and allergy in patients with spina bifida, urogenital disorders, and esophageal atresia compared with normal pediatric population. EUR J PED SUR 2007;17:194-198.

Questions

A 28-year-old man has the following hormone parameters: total testosterone 840 ng/d (normal 300-1000 ng/dl), prolactin 6 ng/ml (normal 1-15 ng/ml), LH 0.2 mIU/ml (normal 3-18 mIU/ml), FSH 0.4 mIU/ml (normal 1-15 mIU/ml). He is well-virilized but has testes that are 10 ml in volume bilaterally. The most likely diagnosis is:

Kallmann syndrome.

Klinefelter syndrome.

Kartagener syndrome.

exogenous testosterone use.

bioinactive LH syndrome.

D

While low levels of pituitary gonadotropins are associated with Kallman's syndrome (absent gonadotropins, anosmia and midline defects), they are not associated with Klinefelter's syndrome where they are markedly elevated. The hormone pattern is not associated with either bioinactive LH (where levels are normal but LH is non-functional) or Kartagener syndrome. The suppressed gonadotropins, associated with good virilization and normal testosterone levels are a classic finding in men using exogenous testosterone.

Schlegel PN,

Hardy MP, Goldstein M: Male reproductive physiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 18, pp 577-578.

Questions

A 49-year-old man with diabetes and hypertension had an 8 cm solid renal mass. Preoperative cardiac angiography reveals a 90%25 occlusion of the right coronary artery and he undergoes bare metal stenting across the blockage. The minimum delay before surgery is:

2 weeks.

6 weeks.

3 months.

6 months.

12 months.

B

Perioperative coronary stent thrombosis is a catastrophic complication that can occur in patients receiving both bare-metal and drug-eluting stents. Noncardiac surgery and most invasive procedures increase the risk of stent thrombosis especially when the procedure is performed early after stent implantation. This is because stents are not yet endothelialized early after placement, antiplatelet therapy is often discontinued in the periprocedural period, and surgery creates a prothrombotic state. Avoidance of preoperative revascularization or stent implantation, appropriate stent type selection when stent implantation cannot be avoided, delay of noncardiac surgery, continuation of antiplatelet therapy in the perioperative period, and increased collaboration between different disciplines (surgery, anesthesiology, and cardiology) all can help minimize the risk of perioperative stent thrombosis. If surgery needs to be performed within 12 months from revascularization, then bare metal stent implantation is likely preferable to drug eluting stents, because bare metal stents endothelialize more rapidly and may therefore carry a lower risk of stent thrombosis. The risk of late stent stenosis less than six weeks after placement of a bare metal stent ranges from 3.9-5%25. Thus withdrawal of antiplatelet therapy may be considered after six weeks.

Brilakis ES, Banerjee S, Berger PB: Perioperative management of patients with coronary stents. J AM COLL CARDIOL 2007;49:2145-2150.

Questions

A three-year-old girl has recurrent febrile UTIs in spite of prophylactic antibiotics. Her VCUG is shown in the exhibit. The next step is:

voiding diary.

creatinine clearance.

renal scan.

urodynamics.

MR urogram.

C

This child has massive grade V reflux into the right kidney. No information is available from the VCUG about the left kidney or the function of the right kidney. The abnormal calyces on the VCUG suggest that the function may be less than optimal. A renal scan is most sensitive to determine split function, which will help determine whether reconstruction versus nephrectomy is suitable. An MR urogram will also give this information, however, the MR will mostly likely require either a general anesthetic or closely monitored sedation. A voiding diary will be not be particularly helpful with the massive reflux. Creatinine clearance may be abnormal but it will not be possible to tell which kidney has the deficit.

Khoury A, Bagli DJ: Reflux and megaureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 117, p 3436.

Questions

The primary storage site for spermatozoa in the human is the:

ampulla of the vas.

bulbourethral gland.

caput epididymis.

ejaculatory duct.

seminal vesicle.

A

The majority of spermatozoa in the human ejaculate is stored in the ampulla of the vas. Less than half is stored in the cauda epididymis. Of the spermatozoa stored within the epididymis, half are in the cauda. At ejaculation there is discharge of spermatozoa from the distal epididymis, proximal vas and the vasal ampulla.

Schlegel PN, Hardy MP, Goldstein M: Male reproductive physiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 18, pp 606-607.

Questions

The yearly whole-body radiation exposure for a Urologist should be no greater than:

5 rad.

5 rem.

5 gray.

5 sievert.

5 becquerel.

B

The amount of radiation energy transferred to an object is different than the relative damage that a particular kind of radiation can cause. The gray describes the property of radiation representing the amount of energy transferred to an object. The units of rad and gray are proportional, with 100 rads equaling 1 gray. A different type of unit estimates biological cell damage, and is the sievert. Like rad and gray, the units of rem and sievert are proportional, with 100 rems equaling 1 sievert. The maximum annual whole-body radiation exposure recommended by the National Council on Radiation Protection is 5 rem. The becquerel measures radioactive decay, with 1 becquerel corresponding to 1 disintegration per second.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1531.

Questions

A 17-year-old girl underwent ileocystoplasty for neurogenic bladder four years ago. During an emergency cesarean section for dystocia, the vascular pedicle to the cystoplasty segment is divided. The next step is:

revascularization of the pedicle.

excise ileal patch; immediate ileal augmentation.

excise ileal patch; delayed sigmoid augmentation.

place suprapubic tube and drain.

observation with follow-up urodynamics.

E

Experimental studies have shown that the augmented bowel segment receives collateral blood flow from the

native bladder. Interruption of the vascular pedicle may cause some decrease in the size of the augmented segment, but the neobladder remains intact. Intraoperative assessment of blood flow to the augmented segment immediately after ligation of the pedicle demonstrates decreased perfusion. However, perfusion returns to normal after eight weeks. Observation of the patient with repeat urodynamic studies is indicated. If this shows a significant decrease in functional capacity, consideration can be given to revision of the ileocystoplasty. Primary revision with sigmoid in this patient would be ill advised without a bowel prep. There should be no need for a suprapubic tube as extravasation is not likely. Immediate re-augmentation may not be indicated unless there is a demonstrable reduction in capacity or compliance.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3686.

Questions

The primary stimulus for ureteral peristalsis is:

stimulation of alpha-adrenergic receptors.

stimulation of beta-adrenergic receptors.

a bolus of urine.

increased intravesical pressure.

stimulation of cholinergic receptors.

C

Most investigators feel that stretching of the ureteral wall initiates and propagates ureteral peristalsis. Because the ureteral smooth muscle cells have numerous close contacts between them, muscular contraction is propagated along the ureter by these muscle cell connections. A bolus of urine does appear to be the primary stimulus for ureteral peristalsis. The autonomic nervous system does not appear to stimulate ureteral peristalsis. A completely denervated ureter, as is seen in renal transplantation, exhibits peristalsis immediately upon transplantation. Increased intravesical pressure is not a primary stimulus for ureteral peristalsis.

Weiss RM: Physiology and pharmacology of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 55, pp 1907-1908

Questions

A 38-year-old obese man desires a biological child. Semen analysis shows a volume of 2.0 ml, 5.2 million sperm/ml and 40%25 motility. Serum testosterone is 312 ng/dl (normal 300 - 1000 ng/dl) and estradiol is 68 pg/ml (normal < 50 pg/ml). The next step is administration of:

estrogen.

anastrazole.

cabergoline.

testosterone.

clomiphene citrate.

B

A testosterone:estradiol ratio of less than 5:1 in a male is strongly suggestive of aromatase dysfunction, and is treated with aromatase inhibition including anastrazole 1 mg p.o. daily or 50 to 100 mg testolactone twice daily. Clomiphene citrate would increase both testosterone and estradiol but the ratio would remain unchanged. Cabergoline is a prolactin inhibitor, and exogenous testosterone would suppress spermatogenesis.

Raman JD, Schlegel PN: Aromatase inhibitors for male infertility. J UROL 2002;167(2 Pt 1):624-629.

Questions

A neonatal ultrasound is shown in exhibits 1-3. The next step is:

renal ultrasound of parents.

hepatic ultrasound.

spinal ultrasound.

VCUG.

echocardiography and aortic ultrasound.

D

This child has a normal right kidney and classic left multicystic kidney. The lucencies seen on the right are due to normal renal pyramids. Parental evaluation could be considered if the child had autosomal dominant polycystic kidney disease. Hepatic fibrosis is associated with autosomal recessive polycystic kidney disease. Spinal abnormalities, cardiac defects, and coarctation of the aorta are not associated with a multicystic kidney. Vesicoureteral reflux is found in approximately 20-40%25 of children with a multicystic kidney. Renal scintigraphy is required to evaluate left renal function and confirm nonfunction.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, p 3337.

Questions

A 62-year-old man develops urinary incontinence three months after a CVA. Urodynamic evaluation will most probably demonstrate detrusor overactivity and:

smooth sphincter synergia, striated sphincter dyssynergia.

smooth sphincter synergia, striated sphincter synergia.

smooth sphincter dyssynergia, striated sphincter synergia.

smooth sphincter incompetence, striated sphincter synergia.

smooth sphincter incompetence, striated sphincter incompetence.

B

After the initial acute episode during which acute urinary retention is common, a variable degree of recovery occurs and any residual neurological deficit becomes apparent over a few weeks or months. During this period symptoms of persistent bladder dysfunction may become apparent. A problem with impaired voluntary urinary control will generally have detrusor overactivity as a urodynamic correlate with symptoms of frequency, nocturia and urgency with or without urge incontinence. The bladder-neck opens normally with the involuntary bladder contraction, and the striated sphincter is synergic unless the patient tries to voluntarily inhibit the bladder contraction by forcibly contracting the striated sphincter. Detrusor-striated sphincter dyssynergia is extremely rare or non-existent in patients with isolated lesions above the brain stem.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2015.

Questions

A 52-year-old man with depression has a low libido. Physical exam reveals obesity but is otherwise normal. Morning serum testosterone is 290 ng/dl (normal > 300 ng/dl) sex hormone binding globulin is 11 nmol/l (normal 10 - 70 nmol/l) albumin is 4.9 g/dl (normal 3.5 - 5.2 g/dl) prolactin is 9 ng/ml (normal < 19 ng/ml) calculated free testosterone is 2.85%25 and calculated bioavailable testosterone is 220 ng/dl (75.8%25) The next step is:

serum LH and FSH assay.

morning urinary cortisol assay.

cranial MRI scan.

administer topical testosterone.

psychiatric referral.

E

Serum testosterone circulates in three forms. Approximately 2%25 is free, 30%25 is tightly bound to sex hormone binding globulin (SHBG,) and the remainder (approximately 68%25) is loosely bound to albumin and other serum proteins. Free and bioavailable testosterone may be accurately calculated by albumin and SHBG values. In this patient, while the total testosterone is slightly low at 290 ng/dl, free testosterone is well above 2%25 and bioavailable testosterone is well above 68%25 at 75.8%25. Normal bioavailable testosterone concurrently existing with low total testosterone is commonly encountered in men with obesity. As an endocrine etiology is unlikely in this patient with depression and low libido, psychiatric referral is indicated. LH assay is not indicated as bioavailable testosterone is adequate, and FSH assay reveals seminiferous epithelial function which is not of interest in this case. In a patient with a normal physical examination other than obesity, Cushing's syndrome is unlikely, and morning urinary cortisol assay is not indicated. With prolactin in the normal range, a pituitary tumor is unlikely, and cranial MRI scan is not indicated. In a patient with depression, loss of libido and adequate bioavailable testosterone, psychiatric referral should be undertaken prior to testosterone therapy.

Sokol RZ, Swerdloff RS: Endocrine evaluation, in Lipshultz LI, Howards SS (eds): INFERTILITY IN THE MALE, ed 3. St. Louis, Mosby Year-Book Inc, 1997, chap 11, p 211.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 767.

Questions

A nine-year-old girl has sepsis and vomiting two years after bilateral ureteroneocystostomy for VUR. The BUN is 80 mg/dl, serum creatinine 2.9 mg/dl, CO₂ 12 mEq/l, and K 6.5 mEq/l. Her renal ultrasound shows severe bilateral hydroureteronephrosis. VCUG is normal. The next step is:

cystoscopy and ureteral catheterization.

diuretic renal scan.

bilateral percutaneous nephrostomies.

cutaneous vesicostomy.

bilateral loop cutaneous ureterostomies.

C

This girl is likely to have post-operative ureteral stenosis with azotemia. Decompression will be necessary to

medically stabilize her before reconstruction. This is most reliably accomplished by percutaneous nephrostomies which will not interfere with ultimate surgical revision of the ureterovesical anastomosis. Cystoscopy and ureteral catheterization is an option but can be technically challenging in the setting of post reimplant obstruction, especially when the previous reimplantation was performed in a cross-trigonal fashion. A diuretic renal scan may further confirm the diagnosis of obstruction but will not change the need for immediate relief of the obstruction in this septic patient. In addition, the renal scan may be less accurate in the setting of azotemia. Cutaneous vesicostomy will not address the ureteral obstruction and loop ureterostomies will complicate future surgery to correct the ureteral obstruction.

Brock III J, Dimarco R: Surgery for vesicoureteral reflux, in Docimo SG, Canning DA, Koury AE (eds): CLINICAL PEDIATRIC UROLOGY, ed 5. London, Informa Healthcare, 2007, p 683.

Questions

A 48-year-old woman undergoes an uncomplicated transobturator sling procedure for stress urinary incontinence. She complains of left leg and thigh pain with abduction on the first postoperative day. The next step is:

MRI scan of the pelvis.

non-steroidal anti-inflammatory drugs.

sling explantation.

vaginal re-exploration and adjustment of sling tension.

sling incision.

B

Transient, self limited lower extremity pain following transobturator sling procedures occurs in 2-16%25 of patients undergoing this procedure. This symptom is usually attributed to a subclinical hematoma or a transient neuropathic phenomenon but may also be due to positioning. This generally resolves within several days and NSAIDs will help control the temporary pain. Persistent pain may indicate vaginal extrusion, thigh abscess or other complications related to the tape.

Dmochowski R, Scarpero H, Starkman J: Tension-free vaginal tape procedures, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 68, p 2269.

Questions

A 37-year-old woman has had a prior hysterectomy now complains of pelvic pressure and intermittent left flank pain. An ultrasound demonstrates severe left hydronephrosis, however, an IVP obtained one week later reveals normal upper tracts bilaterally. This same scenario is repeated over the next several months. A CT scan reveals a 2 cm cystic mass in the left hemipelvis. The next step is:

excision of the left pelvic mass.

left ureteral reimplantation.

tamoxifen.

ureterolysis.

ureteral stent.

A

This patient presents with a classic scenario of ovarian remnant syndrome. Residual ovarian tissue after oophorectomy will cyclically enlarge and result in symptomatology. This condition most commonly occurs after ovarian rupture during oophorectomy for endometriosis. Ureteral obstruction occurs in 5-10%25 of cases. Surgical excision of the mass should be curative while leuprolide depot can be effective in recurrent cases. Reimplantation and ureterolysis are not indicated for obstruction due to external compression by the ovarian remnant. Tamoxifen is not effective in controlling ovarian enlargement.

Koch MO, Coussens D, Burnett L: The ovarian remnant syndrome and ureteral obstruction: Medical management. J UROL 1994;152, 158-160.

Questions

The most important risk factor for progressive hydronephrosis in patients with myelomeningocele is:

high grade VUR.

detrusor overactivity.

decreased detrusor compliance.

LPP > 40 cm of H₂O.

striated sphincter dyssynergia.

D

While all of the factors listed can produce hydronephrosis, a LPP of > 40 cm of water, if left untreated, has uniformly been associated with progressive hydronephrosis. High grade reflux is most likely secondary to the neurogenic bladder. Patients with an elevated LPP should be treated aggressively with CIC and antimuscarinics to prevent hydronephrosis. If this is not successful augmentation cystoplasty maybe indicated in the older patient and vesicostomy in the neonate or infant.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds):

CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, p 3634.

Questions

A 75-year-old man living in a skilled nursing facility with rapidly progressive Parkinson disease reports long standing erectile dysfunction, and chronic urinary incontinence. DRE reveals a 20 g benign prostate. Tamsulosin does not improve his symptoms. Pressure-flow urodynamics reveals a maximum flow rate of 10 ml/second, detrusor pressure at maximum flow of 30 cm H₂O, stress incontinence at maximum capacity of 450 ml, and a PVR of 300 ml. The next step is:

finasteride.

discontinue tamsulosin and start alfuzosin.

green light laser prostatectomy.

CIC by caregiver.

placement of artificial urinary sphincter.

D

This patient likely has multiple system atrophy (MSA) with rapidly progressive parkinsonism and long standing ED. Incontinence is due to severely impaired emptying and sphincteric dysfunction. Finasteride is unlikely to be helpful with a normal size prostate, and there is no evidence to suggest that an alternative alpha-blocker will be more efficacious. While urodynamics are consistent with moderate obstruction, prostate resection/treatment is unlikely to improve bladder emptying in patients with MSA and is associated with a prohibitive risk of worsening incontinence. Though incontinence is noted on urodynamics, it is only with a full bladder. If the patient has support to help with CIC, that should be initiated.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2021.

Questions

A 45-year-old woman becomes hypotensive during an attempt at laparoscopic removal of a non-functioning, hydronephrotic kidney. There is no evidence of intraabdominal bleeding. Oxygen saturation dramatically decreases, and she develops a new heart murmur. The next step is to:

reduce insufflation pressure; continue procedure.

insert bilateral chest tubes.

insert Swan-Ganz catheter.

place patient in the right lateral decubitus position with head up.

stop insufflation and release pneumoperitoneum.

E

The clinical findings are consistent with a CO₂ embolism. This can lead to tachycardia, cardiac arrhythmias, hypotension, increased central venous pressure, hypoxemia, a "mill wheel" heart murmur and cyanosis. Treatment consists of immediate cessation of insufflation and release of the pneumoperitoneum. The patient should be placed head down in a left lateral decubitus position. Discontinuing nitrous oxide allows ventilation with 100%25 O2 thus reducing hypotension. Hyperventilation facilitates elimination of CO₂. If these measures are not successful, a central venous catheter can be inserted to aspirate gas. Cardiopulmonary bypass may be used to treat patients with a massive CO₂ embolism and hyperbaric oxygen therapy should be considered if a cerebral gas embolism is suspected.

Joris JL: Anesthesia for laparoscopic surgery, in Miller RD (ed): ANESTHESIA, ed 5. Philadelphia, Churchill Livingstone, 2000, vol 2, chap 56, pp 2003-2008.

Questions

A two-month-old uncircumcised boy with a sacral dimple undergoes evaluation of a febrile UTI. Ultrasonography shows bilateral hydroureteronephrosis and a conus medullaris at the mid aspect of L4. VCUG shows bilateral Grade IV reflux, slight beaking of the bladder neck and a normal urethra. The next step is:

CMG.

cystoscopy.

MAG-3 renal scan.

circumcision.

vesicostomy.

A

This infant has a compromised urinary tract and a neurogenic cause must be considered. The conus normally ends above L2 and spinal ultrasound is a convenient and accurate method of screening in the neonatal period. Given his low conus, a CMG would be important to see if filling curve and storage pressure are abnormal. Circumcision is not mandatory. Vesicostomy at this point is premature and cystoscopy is not necessary. The hydronephrosis in this case is related to the bladder dysfunction and a MAG-3 scan is unnecessary.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3625-3632.

Questions

A 65-year-old man with Parkinson's disease has urgency, nocturia, frequency, and urge incontinence. DRE reveals an enlarged prostate. The most likely etiology of his symptoms is:

impaired detrusor contractility.

detrusor overactivity.

detrusor sphincter dyssynergia.

decreased detrusor compliance.

antiparkinsonian medications.

B

Parkinson's disease results in relative dopamine deficiency and cholinergic predominance in the corpus striatum. Voiding dysfunction may occur in up to 70%25 of patients. The most frequent urodynamic finding is detrusor overactivity. Poor voluntary control of the striated sphincter may occur, but true dyssynergia is uncommon. Male patients with prostatic enlargement cannot be assumed to be symptomatic from bladder outlet obstruction, and voiding symptoms may actually worsen after prostatectomy because of poorly sustained bladder contractions and abnormal sphincter relaxation.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2017-8.

Questions

A one-year-old girl is evaluated for pyelonephritis. A VCUG is shown in exhibit 1, an ultrasound of the left kidney in exhibit 2, and a furosemide renogram in exhibit 3. The next step is:

antibiotic prophylaxis.

upper pole nephrectomy.

ureteroureterostomy.

subureteric injection of implant.

cutaneous ureterostomy.

C

This patient has an ectopic ureter to the bladder neck. Substantial left upper pole parenchyma is seen on ultrasound, and upper pole function is documented on renal scan. Chemoprophylaxis is not a good long-term solution. It may prevent infection in the short-term but will not address the congenital abnormal ureteral insertion. Upper pole nephrectomy is not indicated since function in the upper pole is acceptable. The least morbid solution is a low uretero-ureterostomy that does not require manipulation of the bladder either intravesically or extravesically.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 3, chap 58, p 2007.

Questions

Successful toilet training in children requires:

voluntary control over the periurethral smooth muscle.

volitional control over the internal sphincter.

autonomic control of detrusor contractions.

an increase in bladder capacity.

a decrease in bladder pressure.

D

Successful toilet training involves achievement of an adult pattern of urinary control and depends on the outcome of at least three separate events in the development of the bladder. First, bladder capacity must increase to serve as an adequate reservoir. Second, voluntarily control over the periurethral striated muscle sphincter must occur. Finally, direct central control over the spinal reflex that controls the detrusor smooth muscle must develop to voluntarily initiate or inhibit detrusor contraction. By the age of 4, most children have matured their urinary tract function and have developed an adult pattern of urinary control. The adult pattern is characterized during bladder filling by an absence of unstable or overactive detrusor contractions.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3605-3607.

Questions

A 55-year-old continent woman has persistent UTIs ten months following a synthetic urethral sling. Cystoscopy reveals the sling protruding through the left anterior-lateral bladder wall with an encrusted 1.5 cm stone. The next step is:

cystolithalopaxy with repeat cystoscopy in three months.

transvaginal cystostomy and removal of intravesical portion of the sling with encrusted stone.

suprapubic cystotomy with removal of the stone and intravesical portion of the tape.

cystolithalopaxy followed by retropubic exploration with extravesical explantation of the sling and closure of the bladder defect.

complete removal of the tape and stone through a retropubic and vaginal approach and placement of autologous pubovaginal fascial sling.

C

Intravesical erosion of synthetic tapes have been reported and are either missed intraoperative perforations or they occur due to pressure necrosis with penetration of the bladder wall. The recommended treatment is removal of the foreign body from the bladder. Extraction of the intravesical portion through a suprapubic cystotomy results in disappearance of all symptoms. Complete removal of the tape is very difficult and may result in recurrent stress urinary incontinence. Cystolithalopaxy will not remove the tape leaving a persistent foreign body and nidus for recurrent stone formation and UTIs. Transvaginal cystotomy risks postoperative vesicovaginal fistula formation and using this operative approach it will be difficult to access the anterior bladder wall. Cystolithalopaxy will be unnecessary if the surgeon is planning a retropubic exploration.

Dmochowski R, Scarpero H, Starkman J: Tension-free vaginal tape procedures, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 68, p 2263.

Tsivian A, Kessler O, Mogutin B, et al: Tape related complications of the tension-free vaginal tape procedure. J UROL 2004;171:762-764.

Questions

A 65-year-old man who underwent placement of an intraurethral stent for treatment of a recurrent bulbar urethral stricture has a markedly decreased urinary stream three months postoperatively. Urethroscopy demonstrates obstructive tissue protruding through the stent. The next step is:

balloon dilation.

replace stent.

urethroplasty.

suprapubic cystostomy.

endoscopic resection of tissue.

E

Hyperplastic tissue can sometimes protrude through endoluminal stents postoperatively. Careful resection of this tissue is often effective, as this hyperplastic reaction usually subsides over time. Balloon dilation is unlikely to be effective in alleviating obstruction due to luminal occlusion; unlike vascular plaques, the scar tissue associated with strictures is not compressible. Stent replacement at three months will be extremely difficult; likewise urethroplasty will require excision of the stent, with a high likelihood for substitution urethral reconstruction. Suprapubic cystostomy is only a temporizing measure that is not indicated in the absence of urinary retention.

Jordan GH: Urolume endoprosthesis for the treatment of recurrent bulbous urethral stricture. AUA UPDATE SERIES 1999, vol XIX, lesson 3, pp 18-23.

Heisenberg ML, Elliott SP, McAninch JW: Management of restenosis after urethral stent placement. J UROL 2008;179:991-995.

Questions

A 16-year-old girl with a neurogenic bladder remains incontinent despite an aggressive program of CIC and antimuscarinic medications. Videourodynamic evaluation demonstrates a flaccid, large capacity bladder and low urethral resistance. The best long-term management is CIC and:

periurethral bulking agent.

bladder neck tubularization.

an artificial urinary sphincter.

a pubovaginal fascial sling.

a Mitrofanoff procedure.

D

The best treatment in this situation is the pubovaginal sling. An advantage of the sling procedure for postpubertal females is that the dissection between the urethra and the vagina can be performed transvaginally, an approach considered by many to be simpler than pelvic dissection required for placement of an artificial urinary sphincter. Bladder neck tubularization produces a significant reduction in bladder capacity and the frequent necessity for reoperations to correct problems with catheterization. Periurethral bulking agents can provide short-term improvement, however the long-term effectiveness remains open to question. A Mitrofanoff procedure will not solve the problem of low outlet resistance.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3665.

Questions

A 28-year old man has a one-year history of erectile dysfunction unresponsive to sildenafil citrate. His baseline erectile rigidity averages 70%25 with poor sustaining ability. He obtains a 20%25 erection following the

administration of 10 mcg of PGE1. Duplex Doppler penile ultrasound parameters after injection demonstrate peak systolic velocities of 18 cm/s bilaterally. The next step is:

administer a second dose of intracavernosal PGE1.

change to vardenafil.

intracavernosal injection therapy.

cavernosometry.

pudendal arteriography.

A

Obtaining accurate information from duplex Doppler ultrasound requires that the patient obtain an erection similar in quality to his best quality spontaneous (non-medication assisted) erection at home. If this is not achieved, the concern is that sympathetic over-activity may result in falsely abnormal erectile hemodynamics. The patient in this case has abnormal peak systolic velocities, however, he failed to obtain a sufficient erection to accurately assess his erectile history. Therefore, he should receive another dose of vasoactive agent intracavernosally. It has been estimated that greater than 50%25 of men will require more than one dose of intracavernosal vasoactive agent during erectile hemodynamic assessment.

Mulhall JP, Abdel-Moneim A, Abobaks R, Goldstein I: Improving the accuracy of vascular testing of the impotent male: Correction of hemodynamic alterations using a vasoactive medication redosing schedule. J UROL 2001;166:923-926.

Questions

The metabolic abnormalities most frequently encountered in patients with cystic fibrosis who develop nephrolithiasis are:

hypercalciuria and hypocitraturia.

hypercalciuria and hyperuricosuria.

hyperoxaluria and hypocitraturia.

hyperoxaluria and hyperuricosuria.

hyperuricosuria and hypocitraturia.

C

Patients with cystic fibrosis are at risk for developing nephrolithiasis. The metabolic defects most commonly encountered in this patient population include hypocitraturia and hyperoxaluria, due to increased

gastrointestinal oxalate absorption and rapid intestinal transport. Several measures can be taken to attenuate stone activity including increased fluid intake, administration of pancreatic enzymes, a low fat and low oxalate diet, and potassium and calcium citrate therapy. Studies demonstrate hypercalciuria and hyperuricosuria are not encountered as commonly in these patients.

Perez-Brayfield MR, Caplan D, Gatti JM, Smith EA, Kirsch AJ: Metabolic risk factors for stone formation in patients with cystic fibrosis. J UROL 2002;167:480-484.

Questions

In a patient with Cushing's syndrome due to an adrenal adenoma, the changes in hormone secretion following a high dose dexamethasone suppression test are best represented by:

ACTH: increase Urinary Free Cortisol: decrease

ACTH: increase Urinary Free Cortisol: increase

ACTH: unchanged Urinary Free Cortisol: unchanged

ACTH: decrease Urinary Free Cortisol: decrease

ACTH: decrease Urinary Free Cortisol: increase

C

Cushing's disease is different than Cushing's syndrome. Cushing's disease is due to increased cortisol production by any cause (pituitary adenoma, ectopic ACTH, and adrenal adenoma). Patients with adrenal Cushing's syndrome have autonomous adrenal production of cortisol, which suppresses ACTH. Exogenous administration of either low-dose or high-dose dexamethasone is unable to alter the autonomous adrenal production. Therefore, it results in no change in either ACTH or urinary free cortisol. For pituitary adenomas, high-dose dexamethasone is capable of suppressing ACTH and urinary free cortisol production.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1834.

Goldfarb DA: Contemporary evaluation and management of Cushing's syndrome. WORLD J UROL 1999;17:22-25.

Questions

A 20-year-old man undergoes a distal shunt (Al-Ghorab) for venocclusive priapism. Four hours later, he has a 70%25 rigid erection. The next step is:

proximal cavernosal-spongiosal shunt.

intracorporal phenylephrine administration.

corporal blood gas analysis.

pudendal arteriography.

cavernosal-saphenous vein shunt.

C

The purpose of a shunt procedure for venocclusive priapism is to oxygenate the penis. Often residual corporal smooth muscle paralysis and edema will leave the patient's penis tumesced and sometimes rigid. Following an Al-Ghorab shunt, grasping the penis at its base and squeezing will reduce arterial inflow and should result in detumescence, if the shunt is open. Confirmation can be made by drawing a blood gas and proving arterial oxygen levels. This should be done before returning to the operating room for a second procedure. An alternative approach would be to perform a penile duplex ultrasound to demonstrate any arterial inflow.

Burnett AL: Priapism, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 26, p 839.

Questions

A 28-year-old woman is diagnosed with hyperparathyroidism and asymptomatic urolithiasis. CT scan reveals several bilateral 5-7 mm calyceal calculi, multiple punctate calcifications within the renal pyramids, and unobstructed collecting systems. Her calculous disease should be managed by:

staged SWL immediately prior to her planned subtotal parathyroidectomy.

simultaneous subtotal parathyroidectomy and bilateral SWL.

subtotal parathyroidectomy followed by staged SWL.

subtotal parathyroidectomy, full metabolic stone evaluation, and directed medical therapy.

subtotal parathyroidectomy and increased hydration.

E

The patient is asymptomatic and her kidney is unobstructed; hence there is no reason to surgically treat her urolithiasis. Patients with hyperparathyroidism who need therapy for their stones can be treated either at the time of their parathyroid surgery or after the neck surgery. If the stones are removed prior to parathyroid surgery, they may recur in the interval between the stone procedure and the neck exploration. Furthermore, SWL is of little benefit in resolving problems of nephrocalcinosis; while it may decrease the stone burden, it alone will not render the patient stone free. Also, as a result of elective SWL therapy, the patient may actually become symptomatic. Simultaneous bilateral SWL is associated with a permanent decrease in total estimated renal plasma flow of 10%25. Patients with hyperparathyroidism seldom have any other underlying abnormality making them prone to stone formation; as such, in the absence of stone growth, there is no reason to repeat

the metabolic evaluation in this patient after stone removal. Indeed, the best policy in the asymptomatic patient with hyperparathyroidism and urolithiasis is to just observe them following their subtotal parathyroidectomy. The solitary calyceal stones as well as the nephrocalcinosis will dissolve or disappear spontaneously over a 10-year period in 75%25 of patients.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1420.

Questions

During radical nephrectomy in a 50-year-old man, the superior mesenteric artery is inadvertently divided. The bowel segment likely to maintain normal blood supply is:

duodenum.

jejunum.

ileum.

cecum.

ascending colon.

A

The duodenum is supplied by the pancreaticoduodenal and the gastroduodenal arteries which arise from the celiac trunk. All of the other bowel segments are supplied by branches of the superior mesenteric artery. Although ligation of the superior mesenteric artery, may not result in ischemic changes, assessment of bowel viability should be done. Primary repair of the vessel should be undertaken if feasible.

Moore KL, Dalley AF, Agur AMR: The abdomen; in CLINICALLY ORIENTED ANATOMY, ed 5. Philadelphia, Lippincott Williams %26 Wilkins, 2006, chap 2, p 274.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2534-2535.

Questions

After a radical prostatectomy, a man complains of bothersome penile pain following orgasm. The next step is:

cystoscopy.

tamsulosin.

cyclobenzaprine.

diazepam.

gabapentin.

B

Orgasmic pain or dysorgasmia occurs in a distinct minority of men after radical prostatectomy. This pain is located in the penis, testicles, perineum or abdomen and while usually of nuisance level, it can be incapacitating leading to avoidance of sexual relations. This pain may also occur after prostate radiation and in chronic pelvic pain syndromes. The condition is believed to result from bladder neck spasm. It is responsive to uroselective alpha-blockers. Cyclobenzaprine and diazepam are skeletal muscle relaxants. There is no role for gabapentin or cystoscopy in these patients.

Barnas J, Parker M, Guhring P, Mulhall JP: The utility of tamsulosin in the management of orgasm-associated pain: A pilot analysis. EUR UROL 2005;47:361-365.

Nickel JC, Narayan P, McKay J, Doyle C: Treatment of chronic prostatitis/chronic pelvic pain syndrome with tamsulosin: a randomized double blind trial. J UROL 2004;171:1594-1597.

Questions

A 39-year-old man with a large left varicocele requests vasectomy reversal four years after vasectomy. At scrotal exploration, he has rare nonmotile sperm in the right vas deferens and an absence of sperm in clear fluid from the left vas deferens. The next step is:

bilateral vasovasostomy.

left varicocelectomy and bilateral vasovasostomy.

right vasovasostomy and left vasoepididymostomy.

left testis biopsy and intraoperative wet prep evaluation.

testicular sperm extraction.

A

With sperm in the vas and a patent abdominal vas deferens, right vasovasostomy is indicated. For men with a brief (<10 years) obstructed interval or clear fluid in the vas deferens, the prognosis for return of sperm to the ejaculate is excellent after vasovasostomy alone, despite intravasal azoospermia. Epididymal exploration and intraoperative testis biopsy will not provide material information to affect treatment decisions. Varicocelectomy and vasovasostomy should not be performed simultaneously, as venous outflow from the testis after varicocele repair is dependent primarily on the vasal vessels that are divided during vasectomy or vasovasostomy, and testicular atrophy may result.

Lipshultz LI, Thomas AJ Jr, Khera M: Surgical management of male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 20, p 681.

Questions

Retroperitoneal organs juxtaposed to the left kidney are:

adrenal, spleen, pancreas.

adrenal, pancreas, colon.

spleen, jejunum, colon.

adrenal, colon, spleen.

spleen, duodenum, pancreas.

B

Cranially, the left kidney is bordered by the adrenal retroperitoneally and the spleen intraperitoneally along the superior and lateral borders of the upper pole. With excessive downward traction on the left kidney, as may occur with a percutaneous procedure, tension on the splenorenal ligament may result in a subcapsular splenic tear. The tail of the pancreas, also retroperitoneal, crosses the upper pole of the left kidney as well. More caudally and anteriorly, the kidney is bordered by the splenic flexure of the colon, which requires medial mobilization to expose the hilum of the kidney. Intraperitoneal structures that abutt the left kidney are the jejunum and spleen. Posteriorly, the upper 1/3 of the kidney - both right and left - lies on the inferior aspect of the diaphragm. Other muscular structures surrounding the kidney include the psoas muscle along its lower medial aspect, the quadratus lumborum laterally, along with the transverse abdominis aponeurosis. The lower poles of each kidney lies laterally and anteriorly compared to the upper pole, such that in the supine position, the upper pole is the more dependent pole. These relationships are particularly important when considering percutaneous access to stones in particular calyces.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 26.

Questions

A 72-year-old man with a 45 g benign prostate has frequency, urgency, and urge incontinence six months after TUMT. His AUA Symptom Score is 20 with a high degree of bother while taking an alpha-blocker. PVR is 175 cc. Pressure flow study shows detrusor overactivity with incontinence, a voiding pressure of 55 cm H₂O, and a flow rate of 7 ml/sec. The best treatment is:

CIC.

5-alpha-reductase inhibitor.

antimuscarinic and 5-alpha-reductase inhibitor.

repeat TUMT.

TURP.

E

In patients who have obstruction and detrusor overactivity relief of the obstruction will generally result in resolution of the detrusor overactivity. Although antimuscarinics may help the patient's symptoms, they do not treat the underlying problem. 5-alpha-reductase inhibitors reduce prostate volumes and modestly improve symptoms but may not treat the underlying obstruction and will take four to six months to achieve the maximal effect in this bothered patient. CIC will not treat the underlying problem of bladder outlet obstruction. TUMT is not as effective as TURP in improving the objective signs of outflow obstruction as evidenced by this man's persistent obstruction.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2819-2821

Roehrborn CG, McConnell, JD, Barry MJ, et al: Guideline on the management of benign prostatic hyperplasia. AUA Education and Research, 2003, p 28

Questions

A 78-year-old man with dilated cardiomyopathy and obstructive pulmonary disease underwent percutaneous radiofrequency ablation of an enlarging 2.7 cm renal mass. Six months later, MRI scan demonstrates persistent contrast-enhancement within the periphery of the tumor. The next step is:

MRI scan in six months.

renal mass biopsy.

PET scan.

repeat percutaneous ablation.

partial nephrectomy.

D

Percutaneous radiofrequency ablation of small renal masses has been offered in recent years as a non-invasive method of treatment. Treatment efficacy is generally determined by follow-up CT or MRI scan evaluating for enhancement within the lesion. If enhancement is noted, this is considered suggestive of residual or recurrent tumor. In most series, between 5-20%25 of patients treated by radiofrequency ablation require re-treatment within the first year due to persistent enhancement. While long-term data is not available, those patients undergoing a second ablative procedure appear to have a similar outcome to those treated effectively in the

first ablation. While partial nephrectomy could be considered in this patient, the frequency of persistent enhancement after the first ablation suggests that a second ablation is warranted prior to proceeding with more aggressive therapy. Biopsy is not indicated in this patient given the fact that the previous ablation may obscure histologic interpretation and that the biopsy outcome would not likely influence the desire to complete treatment. PET scan would not be informative in this case. As the enhancement likely represents residual tumor, it is not likely to abate with continued observation.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1567.

Marberger M, Mauermann J: Ablative therapy of renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 52, p 1810.

Questions

The zones of the adrenal cortex from capsule to medulla are:

reticularis, fasciculata, glomerulosa.

fasciculata, glomerulosa, reticularis.

glomerulosa, reticularis, fasciculata.

glomerulosa, fasciculata, reticularis.

reticularis, glomerulosa, fasciculata.

D

The three layers of the adrenal cortex from peripheral to central are the zona glomerulosa, zona fasciculata, and the zona reticularis. Central to the adrenal cortex is the adrenal medulla which is of neural crest origin and involved in the secretion of epinephrine and norepinephrine. The adrenal cortex is of mesodermal origin. The zona reticularis produces androgens, the zona fasciculata produces glucocorticoids and the zona glomerulosa produces mineralocorticoids, which regulate sodium reabsorption from multiple organs. All of these adrenal cortical functional end products are derived from a common precursor, cholesterol. Since the embryologic origins of the adrenal gland and the kidney are different, in cases of renal ectopia the adrenal gland maintains its respective orthotopic position.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 19.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1825.

Questions

A patient with non-ischemic priapism is to undergo duplex Doppler ultrasonography to confirm the diagnosis. The ultrasonographer should scan the:

ventral penile shaft.

dorsal penile shaft.

perineum.

perineum and ventral penile shaft.

perineum and dorsal penile shaft.

D

The diagnosis of non-ischemic priapism can be confirmed by using duplex Doppler ultrasonography. While the mechanism of injury may guide the clinician to the location of the arterio-corporal fistula, perineal or penile, the ultrasound should assess the penis and perineum. Ultrasonography of the penis to assess cavernosal artery morphology and dynamics is conducted on the ventral surface of the penis in a sagittal, para-urethral plane.

Burnett AL: Priapism, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 26, p 845.

Questions

A 45-year-old man with metastatic clear cell carcinoma involving the lung, liver, lymph nodes, and bone undergoes a right radical nephrectomy. His preoperative labs include a hemoglobin of 9 gm/dl and a calcium of 11.5 mg/dl. The treatment most likely to prolong overall survival is:

temsirolimus.

interferon alpha.

bevacizumab.

sorafenib.

sunitinib.

A

Temsirolimus is a specific inhibitor of the mammalian target of rapamycin (mTOR) kinase - a component of intracellular signaling pathway involved in growth and proliferation of cells. A recent study comparing temsirolimus, interferon alpha or both focused on poor risk candidates. The patients had at least three of the

poor risk features: LDH > 1.5 times upper level, Hgb below normal, calcium > 10 mg/dl, time from diagnosis of cancer > 12 months, metastases in multiple organs, and/or Karnofsky score = 60 or 70. This patient has multiple features that puts him in a poorer risk group: multiple sites of metastasis, anemia and hypercalcemia. Intravenous weekly infusion of temsirolimus when compared to interferon prolongs overall survival, the first agent that has demonstrated an overall survival advantage. Sunitinib and sorafenib have been shown to improve progression free survival, but not overall survival and not in this particular patient with multiple poor risk features.

Hudes G, Carducci M, Tomczak P, et al: Temsirolimus, interferon alfa, or both for advanced renal cell carcinoma. NEJM 2007;356:2272-2281.

Questions

The blood supply to the appendix that must be preserved during an appendicovesicostomy arises from a branch of which artery:

ileal.

anterior cecal.

posterior cecal.

ascending colic.

inferior mesenteric.

A

The superior mesenteric artery (SMA) provides blood supply to the terminal ileum (distal 6 inches), appendix, ascending colon and transverse colon through the ileocecal (ileum, appendix and cecum), right (ascending colon), and middle (transverse colon) colic arteries. A separate mesentery exists from the ileocecal artery to the appendix allowing for the appendix to be separated from the cecum but maintain its blood supply for implantation into the bladder or another bowel segment. The mesentery of the appendix can be "windowed" for imbrication of the cecum around the appendix as is accomplished with the antegrade continence enema (ACE) procedure. The marginal artery of Drummond completes an anastomosing arcade between the middle colic artery of the SMA and the left colic artery of the inferior mesenteric artery, allowing for separation and mobilization of various segments of the large bowel for reconstructive purposes. The right colic artery most often arises directly from the SMA which can limit the mobilization of the cecum and right colon into the pelvis, at times requiring division of the right colic artery. When the right colic artery arises as a branch of the ileocecal artery mobilization of the cecum and right colon is considerably easier.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2536.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3694-95.

Questions

A 28-year-old white male who is sexually active has recurrent episodes of priapism requiring visits to the emergency department. The best treatment is:

terbutaline.

LH-RH agonist.

digoxin.

baclofen.

home intracavernosal phenyephrine.

E

In men with recurrent bouts of priapism and concerned about their sexual function, the use of an LH-RH agonist is problematic. In this situation, training the patient to use intracavernosally delivered phenylephrine is advisable. For a man of any age who is not concerned about sexual function, the use of an LH-RH agonist has been shown to be of benefit. The literature supporting the use of oral terbutaline, digoxin, or baclofen is anecdotal.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 750.

Questions

A 63-year-old man has left flank pain, persistent gross hematuria, and a palpable left abdominal mass. He has lost 30 lbs in the last six months. CT scan reveals a 12 cm heterogenous left renal mass that involves the posterior abdominal wall and left mesocolon. Serum hematocrit is 24%25. A bone scan reveals a sacral metastasis. The next step is:

oral sunitinib.

systemic interleukin-2.

palliative nephrectomy.

diverting colostomy and oral sunitinib.

left renal angioinfarction.

E

This patient has a symptomatic renal mass and a very poor prognosis. His poor performance status and a bone metastasis make it very unlikely that he will respond to therapy with biological modifiers. Percutaneous embolization of the mass should control the hematuria and also palliate his flank pain. Neither systemic IL-2 nor oral sunitinib will control the patient's intractable hematuria, which must be addressed as a first step in palliation. A diverting colostomy is not indicated unless obstruction develops and a palliative nephrectomy is likely to be excessively morbid in this patient with such a poor prognosis. Cytoreductive nephrectomy is not indicated before immunotherapy for patients with poor performance status and visceral metastases.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1620.

Questions

During staging pelvic lymphadenectomy for prostatic carcinoma, a delicate nerve, anterior and lateral to the right external iliac artery and lying along the anterior surface of the psoas muscle, is inadvertently severed. The expected ipsilateral neurological deficit is:

inability to adduct the thigh.

inability to abduct the thigh.

inability to flex the thigh.

anesthesia of the lateral thigh.

anesthesia of the anterior thigh and lateral scrotum.

E

The genitofemoral nerve lies on the anterior aspect of the psoas muscle and is often used as the landmark for the lateral margin of the dissection for a pelvic lymphadenectomy. The genitofemoral nerve supplies sensation to the anterolateral scrotum and the anterior thigh and has no motor innervative functions. The femoral nerve lies deep in the psoas muscle and is, therefore, less often injured during a pelvic lymphadenectomy. It has both sensory and motor functions, supplying sensation to the medial and anterior thigh and motor innervation to the quadriceps muscle which facilitates hip flexion. Injury to the obturator nerve, which lies posterior to the iliac artery, results in the inability to adduct the thigh. The obturator nerve, however, is easier seen and palpable due to its size, compared to the genitofemoral nerve.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 18.

Questions

The etiology of PDE5 inhibitor-associated color vision disturbances (chromatopsia) is:

PDE6 cross reactivity.

optic nerve ischemia.

optic nerve vasocongestion.

sphincter pupillae paralysis.

retinal venous congestion.

A

Chromatopsia is the loss of color vision (blue halo effect) and is related to cross reactivity with PDE6. Non-arteritic ischemic optic neuropathy (NAION) is associated with PDE5 inhibitor use, but there is no robust evidence supporting causality. This condition is related to ischemia of the optic nerve. PDE5 inhibitors are associated with no alterations in visual acuity or electroretinography.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 774.

Questions

The VHL tumor suppressor gene regulates the expression of:

basic fibroblastic growth factor.

epidermal growth factor receptor.

c-Met proto-oncogene.

vascular endothelial growth factor (VEGF).

transforming growth factor beta.

D

The wild type VHL tumor suppressor gene product suppresses the expression of vascular endothelial growth factor (VEGF), a potent stimulator of angiogenesis, through downregulation of hypoxia-inducible factor 1 (HIF1). Mutation or loss of the VHL tumor suppressor gene leads to dysregulated expression of VEGF, which contributes to the neovascularity associated with RCC. This pathway is of critical importance to practicing urologists as most recently developed tyrosine kinase inhibitors target the pathway directly or

indirectly.

Walther MM, Enquist EG, Jennings SB, et al: Molecular genetics of renal cell carcinoma, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY. Baltimore, Williams %26 Wilkins, 2000, chap 9, pp 116-128.

Neumann HP, Zbar B: Renal cysts, renal cancer and von Hippel-Lindau disease. KID INTL 1997;51:16-26.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1629.

Questions

Among girls seen for evaluation of a reported straddle injury, which factor mandates an evaluation for sexual abuse:

recurrent UTIs.

diurnal enuresis beyond age six years.

infrequent voiding.

age under nine months.

encopresis.

D

Genitourinary manifestations of sexual abuse in children are many and straddle injuries often can be confused with abuse. A straddle injury under nine months of age is a "red flag" of abuse in that children of that age are not ambulatory. The possibility of sexual abuse should be considered as a result of associated symptoms including rectal, vaginal or penile pain (in boys), discharge or bleeding or chronic dysuria, enuresis, constipation or encopresis. Dysfunctional elimination syndromes may also be associated with sexual abuse and should raise a concern in certain settings. Recurrent UTIs, diurnal enuresis beyond six years of age, and infrequent voiding are very common in the absence of sexual abuse.

Canning DA, Nguyen MT: Evaluation of the pediatric urology patient, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 110, pp 3199-3203, 3210.

Questions

A 32-year-old single man with decreased libido and erectile dysfunction has a serum testosterone of 100 ng/dl (normal 300-1000 ng/dl) and a prolactin of 150 ng/ml (normal 0-15 ng/ml). He has no visual field abnormalities, but an MRI scan demonstrates a 1 cm pituitary tumor. After three months of bromocriptine, his testosterone is 120 ng/dl, and he is still impotent despite normalization of his prolactin and a slight reduction in the size of the tumor. The most appropriate treatment is:

increase bromocriptine.

testosterone supplementation.

transsphenoidal pituitary surgery.

pituitary radiation.

hCG.

B

Many men with pituitary macroadenomas require testosterone replacement in addition to bromocriptine. The prolactin secreting tumor lowers LH secretion, probably by destruction of the pituitary cells that make LH. Higher doses of bromocriptine are not indicated if the prolactin is normal. Transsphenoidal surgery or pituitary radiation are not indicated if bromocriptine controls the tumor. Human chorionic gonadotropin would be an appropriate option if the patient was interested in fertility. However, in a single man whose chief complaint is impotence, testosterone replacement is easier to administer and less costly.

McVary KT: Erectile dysfunction, in Braunwald E, Fauci AS, Kasper DL, et al (eds): HARRISON'S PRINCIPLES OF INTERNAL MEDICINE, ed 15. New York, McGraw-Hill, 2001, chap 51, p 191.

Questions

The most likely site of lymph node metastasis for a right-sided RCC is:

precaval.

hilar.

para-aortic.

retrocrural.

interaortocaval.

E

The most likely site of lymph node metastasis in an individual with a right-sided renal tumor is the interaortocaval lymph nodes. In men undergoing extensive RPLND at the time of surgery for renal cancer, 46%25 of men with lymph node metastases were found to have disease in this location compared to 27%25 in the hilar and 23%25 in the precaval location, respectively. Contralateral lymph node metastases are rare. As such, hilar lymph node dissection alone carries a poor sensitivity and negative predictive value. At the time of surgery for a right-sided renal tumor, if lymphadenectomy is to be undertaken, it should include the hilar, precaval, and interaortocaval lymph node chains. It should be noted that retrocrural lymph nodes are typically involved only in cases where there is already retroperitoneal lymph node disease.

Giuliani L, Giberti

C, Martorana G, et al: Radical extensive surgery for renal cell carcinoma: Long term results and prognostic factors. J UROL 1990;143:468-474.

Wood DP Jr: Role of lymphadenectomy in renal cell carcinoma. UROL CLIN N AM 1991,18:421-426.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1567.

Questions

At the time of a newborn circumcision, the distal one-half of the glans penis is amputated, including the urethra. The prepuce and glans have been kept in iced saline for four hours. The best management is:

primary anastomosis.

graft of preputial skin for coverage.

discard glans tip and allow secondary healing.

discard the glans tip and re-configure remaining glans.

primary anastomosis with microvascular reconstruction.

A

The length of time from injury and having had the tissue maintained in cold saline should permit adequate healing of the re-anastomosed tip. The urethra should be stented. The are no vessels of sufficient size to permit microvascular re-anastomosis. When the repair is performed within 8 hours after the injury, the penis usually heals nicely. A graft of preputial skin for coverage would result in a poor cosmetic appearance. Similarly, reconfiguration of the remaining glans will not result in an ideal cosmetic effect.

Elder JS: Abnormalities of the genitalia in boys and their surgical management, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 126, p 3748.

Questions

A 28-year-old woman has headaches and blurred vision. Physical exam reveals bipedal edema and an S3 gallop. Her blood pressure is 190/80 mm Hg. Urinalysis shows 10-20 RBC/hpf. Serum creatinine is 1.2 mg/dl. Abdominal exam reveals a right flank mass. The most likely diagnosis is:

polycystic kidney.

adrenal hemorrhage.

renal artery aneurysm.

renal arteriovenous fistula.

renal artery dissection.

D

The presentation of a young woman with hypertension and wide pulse pressure, microscopic hematuria, flank mass, and congestive heart failure should immediately raise the suspicion of an arteriovenous fistula. While the other answers could explain hypertension, the key in this patient is congestive heart failure which in young individuals would be associated with a significant arteriovenous fistula and a renal mass.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1189-1190.

Questions

A 37-year-old woman has low-grade fever and urinary incontinence four weeks after a robotic hysterectomy. A CT scan reveals urinary extravasation into the open vaginal cuff in the left pelvis. There is mild left ureterectasis, and a hematoma surrounds the distal left ureter that is not clearly visualized. Cystoscopy is negative and a stent could not be placed in the left ureter. In addition to I.V. antibiotics, the next step is:

CT-guided pelvic drain placement.

left percutaneous nephrostomy tube and antegrade stent placement.

laparoscopic exploration and repair.

open exploration with ureteroneocystostomy.

open exploration with primary ureteral repair.

B

The most common etiology of ureterovaginal fistula is surgical injury to the distal ureter, generally occurring during gynecologic procedures, most often during hysterectomy. Risk factors include endometriosis, obesity, pelvic inflammatory disease, radiation therapy and pelvic malignant disease. The most common presenting symptom is the onset of constant urinary incontinence one to four weeks after surgery. This is often preceded by several days of flank or abdominal pain, nausea, and low-grade fever, presumably because of urinoma or ureteral obstruction. The goal of therapy is expeditious resolution of urine leakage, prevention of urosepsis and preservation of renal function. Prompt drainage of the affected upper urinary tract is essential. An attempt at ureteral stenting or percutaneous nephrostomy tube decompression is warranted as soon as possible. If ureteral stenting is unsuccessful, surgical repair is indicated. The site of injury and the surrounding fibrosis and inflammation usually preclude primary repair of the fistula necessitating ureteroneocystostomy.

Rovner ES: Bladder and urethral diverticula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 73, pp 2341-2345.

Questions

A 53-year-old T-5 paraplegic woman undergoes intra-detrusor botulinum toxin injections for intractable incontinence between catheterizations. She should be told that:

botulinum toxin type B is most frequently used.

a repeat injection will likely be needed within three months.

a total dose of 200 units has been shown to have proven efficacy.

a dose of 100 units per injection site will be used.

general anesthesia is required for the procedure.

C

Intra-detrusor injections of botulinum toxin type A have been effectively utilized to treat neurogenic overactive bladder. However, this is not an FDA-approved indication. A total dose of 200-300 units has been shown to have efficacy for this condition, with typically 10 units injected per site. This is an office procedure, with intravesical lidocaine administered prior to injection. In the majority of studies, botulinum toxin A injections last six to nine months. The most common side effects of botulinum toxin A include impaired bladder emptying, hematuria, and UTI.

Schurch B, Denys P, Kozma CM, et al: A improves the quality of life of patients with neurogenic urinary incontinence. EUR UROL 2007;52:850-858.

Questions

A 42-year-old woman has a blood pressure of 180/115 mm Hg. Serum chemistries include: BUN 14 mg/dl, creatinine 0.9 mg/dl, Na 140 mEq/l, CO₂ 28 mEq/l, K 3.1 mEq/l, Cl 100 mEq/l, calcium 10.4 mg/dl, and phosphorus 3.4 mg/dl. The plasma renin is 0.5 mg/ml/hr (normal 1.0-8.0 mg/ml/hr). The most likely diagnosis is:

pheochromocytoma.

renal tubular acidosis.

renal artery stenosis.

Page kidney.

primary hyperaldosteronism.

E

The findings of hypertension, hypokalemia, and suppressed plasma renin activity are consistent with primary hyperaldosteronism. With renal artery stenosis or a Page kidney, the plasma renin level should be elevated. The serum CO₂ of 28 mEq/l mitigates against RTA. There are no data to support a diagnosis of pheochromocytoma in this patient.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1851-1853.

Questions

The most likely underlying etiology for an ileo-vesical fistula in a 35-year-old man with pneumaturia is:

Crohn's disease.

diverticulitis.

trauma.

appendiceal abscess.

malignancy.

A

Pneumaturia is the most common presenting symptom for a vesico-enteric fistula. Overall, the most common cause of vesico-enteric fistula is diverticulitis followed by cancer and Crohn's disease. Colo-vesical fistulas are usually due to diverticulitis. However, underlying gastrointestinal disease influences the likelihood and type of fistula. Ileo-vesical fistulas are more commonly due to Crohn's disease than cancer.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2351-2352.

Questions

A 1200 gm newborn boy is treated for presumed sepsis with antibiotics via an umbilical artery catheter for two weeks. Five days later, a skin rash is noted and urinary output decreases. He develops respiratory distress and abdominal distention. There is gross hematuria and particulate matter in the urine. The most likely diagnosis is:

renal vein thrombosis.

fungal urinary infection.

umbilical artery perforation.

renal papillary necrosis.

renal cortical necrosis.

B

The clinical history is consistent with an infection. Indwelling intravascular catheters and concomitant broad spectrum antibiotics increase the likelihood of candidal infection, particularly in premature low birth weight infants. If hydronephrosis and fungus balls are present in the renal collecting system, percutaneous drainage and irrigation with Amphotericin-B may be needed. At times, fluconazole may be effective. Renal papillary necrosis and cortical necrosis may be a late stage of severe infection and in this case would be made by the pathologist after treatment failure.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, p 3265.

McAleer SJ, Johnson CW, Johnson WD Jr: Tuberculosis and parasitic and fungal infections of the genitourinary system, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 14, pp 459-470.

Questions

The renal arterial disease associated with stable renal function to the affected kidney is:

atherosclerosis.

intimal hyperplasia.

fibromuscular hyperplasia.

medial fibroplasia.

perimedial fibroplasia.

D

Medial fibroplasia is the most common form of fibromuscular renal artery disease. It typically occurs in women between 30-50 years of age. It is associated predominately with hypertension and is rarely a cause of progressive renal ischemic atrophy. All other diseases listed are associated with progressive disease that can culminate in renal loss.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1160.

Questions

Clear fluid with a high amylase content begins to drain from a suction catheter two days after difficult excision of a large left adrenal tumor. There is no fever and minimal leukocytosis. Two weeks later, the drainage remains copious but the overall clinical condition is stable. The next step is:

nasogastric suction and parenteral hyperalimentation.

endoscopic intubation of the pancreatic duct.

continued observation.

distal pancreatectomy.

medium chain triglyceride diet.

A

In this case the clinical findings are most consistent with a pancreatic fistula resulting from unrecognized intraoperative injury to the tail of the pancreas. These fistulas usually close with conservative management (bowel rest and hyperalimentation). Endoscopic intubation of the pancreatic duct likely will not be helpful as this structure is not obstructed. Distal pancreatectomy would be considered a last resort only after less invasive interventions have failed. Medium chain triglycerides are used in the management of chylous ascites.

Chow GK, Blute ML: Surgery of adrenal glands, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 54, pp 1885-1886.

Questions

A ten-day-old infant boy is hospitalized for failure to thrive. After his umbilical stump fell off, fluid has intermittently drained from the umbilicus. The umbilical fluid has a creatinine of 10 mg/dl and grows >10⁵ cfu/ml of E. coli. The next step should be antibiotics and:

observation.

cannulation and injection of contrast.

VCUG.

closure of fistula.

urethral catheter drainage.

C

The differential diagnosis of a wet umbilicus in the infant includes patent urachus, omphalitis, simple granulation of the healing stump, patent vitelline or omphalomesenteric duct, infected umbilical vessel, and external urachal sinus. The finding of a urinary creatinine level in the fluid draining from the umbilical stump suggests a patent urachus. While probing the urachal tract may aid in diagnosis, a VCUG should confirm the diagnosis and fully evaluate the lesion and any associated bladder outlet obstruction.

Frimberger D, Kropp BP: Bladder anomalies in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 121, pp 3576-3578.

Questions

An 80-year-old man experiences day and night urinary incontinence despite timed voiding every two hours and nightly fluid restriction. Urinalysis is normal, and PVR is 250 ml. Pressure-flow urodynamics reveal detrusor overactivity with impaired contractility. Maximum detrusor pressure is 10 cm H₂O. The best treatment is:

bethanechol and daytime fluid restriction.

bethanechol and alpha-blocker.

antimuscarinic and alpha-blocker.

antimuscarinic and TURP.

antimuscarinic and CIC.

E

Detrusor overactivity with impaired contractility is the most common form of detrusor dysfunction in the elderly. The typical presentation is urinary urge incontinence and an increased PVR. Pressure-flow urodynamics typically reveal involuntary detrusor contractions, low detrusor pressure, and decreased maximum urinary flow. This syndrome can often be confused with bladder outlet obstruction or overflow incontinence. Although behavioral methods such as straining, performing the Crede maneuver, and double voiding can be initiated, bladder emptying is generally ineffective. Bethanechol has not been effective in augmenting detrusor contractility. Suppression of involuntary bladder contractions with an antimuscarinics will generally result in an increase in the PVR despite efforts to reduce outlet resistance. The addition of CIC to antimuscarinics results in effective bladder emptying and eradication of the incontinence.

Resnick NM, Yalla SV: Geriatric incontinence and voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 71, p 2310.

Questions

A 27-year-old man has a right testicular mass. Radical orchiectomy is performed and histology shows pure seminoma. CT scan is normal but serum beta-hCG remains 60 IU/ml (normal < 7 IU/ml) six weeks later. The next step is:

radiation to retroperitoneal nodes.

radiation to retroperitoneal and mediastinal nodes.

RPLND.

platinum-based chemotherapy.

check serum LH levels.

A

This patient most likely has persistent seminoma in the retroperitoneum. Patients who harbor non-seminomatous elements that could have been "burnt-out" in the primary tumor usually have beta-hCG levels higher than 200 ng/ml. Most authorities recommend treating seminoma with radiation to the retroperitoneal lymph nodes only, thus avoiding the potential toxicity of mediastinal disease which, if it develops later, may be salvaged with chemotherapy. Primary RPLND is not recommended for seminoma. Patients with markedly elevated serum LH levels may have a false elevation of beta-hCG but it is usually not to the magnitude described here.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 906.

Questions

A nine-month-old girl is brought to the operating room for repair of a right UPJ obstruction. Renal ultrasound shows moderately severe hydronephrosis with a large extrarenal pelvis and no thinning of the parenchyma. During the UPJ repair, the ureter is found to be narrow for 2.5 cm immediately below the UPJ. A tension-free dismembered pyeloplasty is not possible after renal mobilization. The next step is:

cutaneous pyelostomy.

spiral flap pyeloplasty.

ureterocalycostomy.

appendix interposition.

Monti ileal ureter interposition.

B

When a long segment of strictured proximal ureter is encountered at the time of a planned repair for UPJ obstruction, a tension free anastomosis may not be possible with a standard dismembered pyeloplasty. When adequate renal pelvic tissue is present, the next best option is a spiral flap procedure, especially when the UPJ is already in a dependent position. The other options are viable alternatives but should only be considered when renal pelvis tissue is not available for use since they are more technically challenging and/or have a higher associated complication rate.

Carr MC, El-Ghoneimi A: Anomalies and surgery of the ureteropelvic junction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 115, p 3370.

Questions

A 28-year-old man with an ileal conduit for 20 years is scheduled for a renal transplant. He had a PUV treated as an infant. A CMG shows a 75 ml capacity bladder with detrusor overactivity, and his maximum voiding pressure is 50 cm H₂O. After five days of bladder cycling, his bladder capacity increases to 200 ml. The best management is:

transplant into the existing ileal conduit.

bladder augmentation before transplant.

transplant into native bladder.

neobladder construction before transplant.

Indiana pouch construction before transplant.

C

Transplantation into a pre-existing urinary diversion is necessary when the bladder is absent, the recipient is totally incontinent and cannot undergo repair or irreparable bladder damage has occurred. Selected patients may undergo successful undiversion at transplantation even after many years of urinary diversion. They should undergo urodynamics, VCUG, and cystoscopy. In the absence of significant fibrosis, long-term defunctionalized bladders should improve with restoration of urine flow. This may be assessed after three to five days of bladder cycling by suprapubic tube or CIC. Bladder cycling must result in a bladder capacity > 100 ml and urodynamics must demonstrate a voiding pressure < 100 cm water before transplanting into the native bladder.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3701.

Questions

A 63-year-old man, previously treated with pelvic radiation for colon cancer, develops localized Gleason 4%2B3=7 adenocarcinoma of the prostate. He undergoes radical prostatectomy that is complicated by a 3 cm rectourethral fistula four weeks after surgery. The best management is:

bowel rest and urethral catheter drainage.

fecal diversion and bilateral percutaneous nephrostomies.

transrectal fistula repair.

transabdominal fistula repair.

staged fecal diversion and fistula repair.

E

The incidence of rectourethral fistula after radical retropubic prostatectomy is 1-2%25. The risk of a fistula increases with a prior history of pelvic radiation therapy, rectal surgery, or TURP. Fistulas generally occur at the vesicourethral anastomosis and are often due to unrecognized rectal injury at the time of surgery. Although single and staged repairs have been described, staged repairs are recommended in cases of large fistulas and those associated with radiation therapy, uncontrolled local or systemic infection, immunocompromised states, or inadequate bowel preparation at the time of definitive repair. Conservative treatment with urethral catheterization is unlikely to be successful for large fistulas in the setting of prior radiation.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2353-2357.

Questions

A 55-year-old man has mild right flank pain eight weeks after an aorto-iliac vascular graft. Serum creatinine is 1.4 mg/dl, WBC 12,000/cu mm, and urine culture is sterile. Renal ultrasound shows moderate right hydronephrosis, and CT scan demonstrates the graft is posterior to the right ureter. The best treatment is:

percutaneous nephrostomy.

oral steroid therapy.

transureteroureterostomy.

nephrectomy.

ureterolysis.

B

Hydronephrosis occurs in 5%25 of ureters at risk following reconstructive vascular surgery. The cause of ureteral obstruction is anterior graft placement (30%25) and localized retroperitoneal fibrosis (70%25). Grafts should be placed posterior to the ureter, as in this case. Early ureteral obstruction due to secondary retroperitoneal fibrosis occurring within six months of surgery can resolve with a four week course of oral steroid therapy. Percutaneous nephrostomy is not indicated with only mild flank pain and a normal serum creatinine. Transureteroureterostomy should be reserved for major loss of ureteral length and nephrectomy is not indicated. Ureterolysis would be reserved for failure of more conservative measures.

Cangiano TG, deKernion JB: Urologic complications of vascular surgery. AUA UPDATE SERIES. 1998, vol 17, lesson 39, p 306.

Huben RP, Schellhammer PF: Steroid therapy for ureteral obstruction after aortoiliac graft surgery. J UROL 1981;125:881-883.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1223.

Questions

Combined renal and liver transplantation is curative for:

amyloidosis.

primary hyperoxaluria.

Alport syndrome.

cystinosis.

Fabry's disease.

B

When performing renal transplantation, recurrence of the underlying renal disease which resulted in ESRD is of significant concern. Renal amyloidosis, cystinosis, and Fabry's disease are all potentially treatable with renal transplantation despite significant recurrence. Alport syndrome is not associated with recurrence after transplantation, but does not require a liver transplant. Simultaneous renal and liver transplantation will be curative in patients with ESRD secondary to primary hyperoxaluria since the defect in oxalate metabolism occurs in the liver.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1378.

Questions

A 25-year-old man undergoes left scrotal exploration and subsequent orchiectomy. Pathologic and staging evaluation reveal a NSGCT clinical stage IIB. After full-dose platinum-based chemotherapy, he has a residual 3

cm para-aortic mass. The next step in treatment should be RPLND and:

wide excision of the scrotal scar.

wide excision of the scrotal scar and spermatic cord remnant.

removal of the spermatic cord remnant.

left hemiscrotectomy and removal of spermatic cord remnant.

left hemiscrotectomy, removal of the spermatic cord remnant and ipsilateral ilioinguinal node dissection.

C

In patients with low-stage NSGCT, the scrotal scar should be widely excised with the spermatic cord remnant at the time of RPLND. This patient, however, has more high volume disease. Patients treated with full-dose platinum-based regimens should have the cord stump removed at the time of RPLND; however, given the relative absence of local relapse after systemic treatment, extensive groin dissection or hemiscrotectomy is not required.

Sheinfeld J, Bartsch G, Bosl GJ: Surgery of testicular tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 30, p 938.

Questions

A 14-year-old boy with C-4 quadriplegia secondary to a MVC six years ago has severe neurogenic bladder dysfunction, high-grade VUR, and marked hydroureteronephrosis. He requests urinary diversion because of inability to catheterize. The best choice of diversion is:

bilateral loop ureterostomy.

Kock pouch.

non-refluxing colon conduit.

ileovesicostomy.

ureterosigmoidostomy.

D

In this case, any continent diversion (including a Kock pouch) is contraindicated due to difficulty catheterizing. A ureterosigmoidostomy requires fecal continence. A non-refluxing colon conduit would be at high risk for complications due to the dilated ureters and loop ureterostomies require two appliances. A continuously draining ileovesicostomy is a low risk procedure that will allow free urinary drainage and easy application. The

complications of the procedure include urethral incontinence, stomal stenosis and bladder and renal calculi.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2606.

Questions

A 20-year-old woman with ESRD of unknown etiology is being considered for renal transplantation. A 24-hour urine reveals a creatinine clearance of 18 ml/min and 600 mg protein. An ultrasound reveals small kidneys with mild bilateral caliectasis. Prior to transplantation, she should undergo:

repeat creatinine clearance.

VCUG.

renal scan.

retrograde pyelography.

bilateral nephrectomy.

B

Despite a negative clinical history for UTI, VUR as a cause of ESRD must be ruled out in a woman of childbearing age. If significant (Grade III or higher) VUR exists, strong consideration should be given to native nephrectomy to avoid chronic infection post-transplant. If native nephrectomy is necessary, the surgery should be postponed until the patient is dialysis-dependent. There is no need to repeat the 24-hour urine collection since the creatinine clearance is < 20 ml/min, which is an accepted criteria for transplantation. There is no indication for preemptive bilateral native nephrectomy, retrograde pyelography, or renal scan in this setting.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, pp 1299-1300.

Questions

When assessing bone mineral density (BMD) with a DEXA (dual energy x-ray absorptiometry) scan in a 65-year-old man with prostate cancer treated on leuprolide, a T score defines the number of standard deviations from the mean BMD score of:

age-matched peers.

age-matched peers with prostate cancer without prior androgen deprivation.

men between the ages of 20 and 35 years.

men between the ages of 45 and 55 years.

men between the ages of 60 and 70 years.

C

The possible deleterious effect of androgen deprivation therapy on bone health is becoming increasingly recognized. A DEXA nuclear medicine study is often the diagnostic study of choice to measure bone mineral density (BMD). The BMD is expressed as a T score, which defines the number of standard deviations away from a mean BMD score derived from normal individuals of the same sex between 20 and 35 years of age, when bone mass is generally at its peak. The lower the T score, the lower the BMD and the greater the risk for fracture. The BMD measures the relative and not the absolute future risk. Each standard deviation reduction in BMD core correlates to a 10%25 to 15%25 reduction in BMD, and an approximate doubling of fracture risk. The Z score compares one's BMD to age-matched peers.

Moyad MA: Preventing male osteoporosis: prevalence, risks, diagnosis and imaging tests. UROL CLIN N AM 2004;31:321-330.

Michaelson MD, Kaufman DS, Lee H, et al: Randomized controlled trial of annual zoledronic acid to prevent gonadotropin-releasing hormone agonist-induced bone loss in men with prostate cancer. J CLIN ONCOL 2007;25:1038-1042

Questions

During continent reconstruction of the lower urinary tract using an intestinal segment, efforts are made to prevent reflux into the upper urinary tract in order to avoid:

upper tract bacteriuria.

transmission of pressure to the kidney.

intestinal mucous in kidney.

upper tract urine storage.

yo-yo effect and ureteral dilation.

A

After continent reconstruction with an intestinal segment, there is a high incidence of bacteriuria especially if CIC is required to empty the reservoir. An antirefluxing connection of the upper urinary tract protects the kidneys from ascending infection. Intra-reservoir pressure is transmitted to the upper urinary tract even in the absence of reflux. Successful continent reconstruction is predicated on an adequate low pressure reservoir.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2554-2559.

Questions

A 23-year-old woman suffers a complex pelvic fracture in a MVC. A cystogram reveals limited extraperitoneal extravasation of contrast at the bladder neck. The bladder is compressed by a pelvic hematoma and an anterior vaginal laceration is also present. No other injuries are noted, and she is hemodynamically stable. Treatment should be:

urethral catheter drainage.

percutaneous suprapubic cystostomy.

open bladder repair.

suprapubic cystostomy and perivesical drainage.

repair of vaginal and bladder lacerations.

E

Urethral and bladder neck injuries in women are rare but potentially devastating in their effects on long-term continence and bladder function. The urethra is short, mobile, and protected by the pubis in women. Female urethral and bladder neck injuries occur in 4.6%25 to 6%25 of women suffering pelvic fractures. The typical presentation includes gross hematuria or blood at the introitus. Despite blood in the vaginal vault, over 40%25 of female bladder neck and urethral injuries are missed in the emergency department and only half will be detected on CT cystogram. As a result, one must have a high index of suspicion and low threshold for performing a vaginal examination in females with pelvic fractures. Female bladder neck injuries should undergo immediate repair with primary closure of any vaginal lacerations to prevent fistula formation. Longitudinal tears of the female bladder neck have been associated with higher rates of incontinence. Such injuries should be repaired immediately to preserve the functional integrity of the bladder neck. In one recent series, despite operative repair, 16%25 of women developed vesicovaginal fistulas, 43%25 had moderate or severe lower urinary tract systems, and 38%25 had sexual dysfunction.

Black P, Miller E, Porter JR, Wessells H: Urethral and bladder neck injury associated with pelvic fracture in 25 female patients. J UROL 2006;175(6):2140-2144.

Questions

A 56-year-old man has a 2 cm solid mass in the upper pole of his right epididymis revealed on a scrotal ultrasound. The next step is:

observation.

needle biopsy.

mass excision.

epididymectomy.

inguinal orchiectomy.

C

Small rounded masses of the epididymis (0.5-3 cm) are generally adenomatoid tumors. These tumors can be located throughout the epididymis and are generally asymptomatic. They are typically benign tumors, and there are no reported cases of metastasis. The recommended treatment is surgical excision.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 9. Philadelphia, Elsevier, 2007, chap 29, pp 931-932.

Questions

As a part of normal renal function, most of the filtered solutes and water are returned to the systemic circulation by:

proximal tubular reabsorption.

proximal tubular secretion.

distal tubular secretion.

the countercurrent mechanism.

distal tubular reabsorption.

A

The normal GFR averages 130-180 l/day, a volume sixty times that of plasma volume. Therefore, most filtered solutes and water must be returned to the circulation. Tubular reabsorption accomplishes this phenomenon - mainly in the proximal tubule and then the loop of Henle. Proximal tubular secretion would remove solutes from the circulation as would distal tubular secretion. The countercurrent mechanism is a net exchange.

Rose BD, Rennke HG: RENAL PATHOPHYSIOLOGY - THE ESSENTIALS. Baltimore, Williams %26 Wilkins, 1994, p 2.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1138.

Questions

A 43-year-old man has sudden onset of fever (103° F), chills, dysuria, increased urinary frequency, and difficulty voiding. Physical examination reveals lower abdominal tenderness and a swollen, tender prostate. Prior to antibiotic treatment, culture should be obtained from the:

urethra.

catheterized urine.

expressed prostatic fluid.

voided urine after prostatic massage.

mid-stream urine.

E

This patient has acute prostatitis. Prostatic massage is to be avoided in patients with acute prostatitis as this may cause bacteremia. Consequently, C and D are not only unnecessary for diagnosis but might well be harmful. The diagnosis can be made from culture of the urine, as the organism causing the prostatitis is almost always present in the bladder urine during acute prostatitis. Cultures from the urethra are of no particular value in this case. Instrumentation of the lower urinary tract should be avoided in acute prostatitis; furthermore, it is seldom necessary to catheterize a male just to obtain a urine culture.

Fowler J: Prostatic infection and inflammation, in Stein BS, Caldamone AA, Smith JA (eds): CLINICAL UROLOGIC PRACTICE. New York. WW Norton, 1995, pp 331-353.

Nickel JC: Inflammatory conditions of the mail genitourinary tract: Prostatitis and related conditions, orchitis, and epididymitis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 9, p 313.

Questions

A 68-year-old man has a 4 cm scrotal mass. Ultrasound shows a normal testis with a heterogeneous paratesticular tumor. During inguinal exploration a solid mass is encountered attached to the spermatic cord, separate from the testis and scrotum. Frozen section biopsy shows a spindle cell tumor. The next step is:

excision of the mass.

radical orchiectomy.

radical orchiectomy and hemi-scrotectomy.

radical orchiectomy and inguinal node dissection.

radical orchiectomy and scrotal irradiation.

B

This patient has a paratesticular sarcoma. Local treatment is radical orchiectomy via the inguinal approach. If there is evidence of involvement of the scrotal wall, hemi-scrotectomy would be appropriate. The inguinal nodes are not at particularly high risk of disease, though a RPLND is indicated in some types of sarcoma.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 933.

Questions

A 65-year-old man has chronic urinary retention and pedal edema. His BUN is 75 mg/dl. He is catheterized and a brisk diuresis of 500 ml/hr ensues. Forty-eight hours later, the BUN is normal and the ankle edema is gone, but the diuresis persists. The probable cause of the persistent diuresis is:

overload of fluid prior to relief of the obstruction.

increased urea content in the urine.

failure to decompress the bladder slowly.

abnormal ADH secretion.

decreased tubular sodium reabsorption.

E

Although early diuresis after relief of obstruction may be due to solute and water overload, in this instance the diuresis persists. This sodium-losing nephropathy is due to impaired tubular reabsorption of sodium. Failure to decompress the bladder slowly will not result in diuresis. Increased urea content in the urine will not result in diuresis and not likely present in this patient as his BUN has returned to normal. Overload of fluids prior to relief of obstruction will result in diuresis but with a normal BUN and ankle edema gone, this would not last 48 hours.

Sokoloff MH, Michel K, Smith RB: Complication of transurethral resection of the prostate in, Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders Co, 2001, chap 19, p 232.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1214.

Questions

The most effective treatment of balanitis xerotica obliterans affecting the prepuce, glans penis, and the meatus is:

topical corticosteroids.

5-fluorouracil cream.

circumcision.

meatal dilation.

meatoplasty.

C

Balanitis xerotica obliterans (Lichen sclerosis et atrophicus) is an inflammatory condition of the glans and prepuce of unknown cause. It frequently produces significant phimosis and may produce complete obliteration of a glans penis. The etiology remains controversial, as is the treatment. In a study of 287 patients, Depasquale, et al demonstrated 92%25 of patients undergoing circumcision alone had symptom relief and arrest of the progress of the disease. 3.9%25 of patients had development of glans ulceration requiring glans resurfacing and 4%25 had meatal stenosis significant enough to require meatotomy or meatoplasty.

Depasquale I, Park AJ, Bracka A: The treatment of balanitis xerotica obliterans. BJU INTERNAT 2000;86:859-865.

Questions

A 78-year-old man had a radical cystectomy and ileal conduit for recurrent bladder cancer following radiation therapy. Pathology showed stage pT3bN0M0 cancer. CT scan at one year was normal, but at two years there was marked right hydroureteronephrosis with very thin residual renal parenchyma. Loopogram shows a tight narrowing of the right distal ureter 2 cm above the ureteroileal junction. He is asymptomatic and serum creatinine is 1.6 mg/dl. The next step is:

observation.

retrograde balloon dilation of the ureter.

percutaneous laser incision of the stricture.

open reimplantation of the ureter into the ileum.

right nephroureterectomy.

E

This is an unusual site for a benign ureteroileal stricture, and there is a high likelihood that this is the result of tumor recurrence in the ureter. Endoscopic management is unlikely to work, and does not establish the etiology of the obstruction. Since the kidney has little remaining parenchyma, the best treatment is

nephroureterectomy.

Flanigan RC: Urothelial tumors of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 48, p 1649.

Questions

A 60-year-old man has a prolonged ileus for three weeks after radical nephrectomy complicated by a wound infection. Hydration is maintained by intravenous fluids. Serum sodium, potassium, bicarbonate, chloride, and creatinine are normal. He develops neuromuscular irritability, tetany, and behavioral disturbances. The cause of these symptoms is most likely:

hypoglycemia.

hypomagnesemia.

hypoproteinemia.

hypocalcemia.

hypercalcemia.

B

Prolonged parenteral fluid and electrolyte therapy which doesn't include magnesium can result in significant depletion of this electrolyte. The symptoms of hypomagnesemia include neuromuscular irritability and disturbed cerebration. Any patient maintained solely on prolonged intravenous fluids should have serum magnesium levels determined, particularly if he fails to improve. Electrolyte replacement should include appropriate amounts of magnesium. Calcium abnormalities will result in neuromuscular disturbances but not likely with the behavioral manifestations.

Agus ZS: Hypomagnesemia. J AM SOC NEPHROL 1998;10:1616-1622.

Polack MR, Yu ASL, Taylor EN: Disorders of Calcium, Magnesium and Phosphate Balance. In BM Brenner (Ed), Brenner and Rector's The Kidney, 8th Edition. Philadelphia: Saunders Elsevier, 2008, Chp 16, p 596.

Questions

A 32-year old man complains of perineal pain, ejaculatory pain, and urinary frequency for the last eight months. Urine cultures have been negative and cystoscopy was also negative. A three week course of Bactrim® did not resolve his symptoms. Expressed prostatic secretion now shows 15 WBC/hpf compared to 5 WBC/hpf prior to antibiotic treatment. This expressed prostatic secretion finding:

indicates he will need treatment with ciprofloxacin.

is not relevant to the severity of his symptoms.

predicts he will respond to alpha-blockers.

is consistent with a prostatic abscess.

corresponds with a diagnosis of autoimmunity.

B

This patient has chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS). This condition has been studied extensively by the NIH-funded Chronic Prostatitis Clinical Research Network (CPCRN). The CPCRN has found that WBC on expressed prostatic secretion do not correlate with severity of CP/CPPS symptoms. Furthermore, ciprofloxacin and alpha-blockers are not effective. If prostatic abscess is suspected, an expressed prostatic secretion should not be performed. However, the clinical presentation does not suggest an abscess. While autoimmunity in CP/CPPS has been suggested, there is no data to correlate a diagnosis of autoimmunity with the finding of WBC on expressed prostatic secretion.

Schaeffer AJ, Knauss JS, Landis JR, et al: Chronic Prostatitis Collaborative Research Network Study Group. Leukocyte and bacterial counts do not correlate with severity of symptoms in men with chronic prostatitis: The National Institutes of Health Chronic Prostatitis Cohort Study. J UROL 2002;168:1048-1053.

Alexander RB, Propert KJ, Schaeffer AJ, et al: Chronic Prostatitis Collaborative Research Network. Ciprofloxacin or tamsulosin in men with chronic prostatitis/chronic pelvic pain syndrome: A randomized, double-blind trial. ANN INTERN MED 2004;141(8):581-589.

Questions

A 59-year-old man with a solitary kidney and normal renal function has a left renal pelvic filling defect on CT urogram. Ureteroscopy reveals a 3.5 cm solid appearing mass involving the renal pelvis and extending into the lower pole infundibulum. Biopsy and renal pelvic washing reveal high grade urothelial carcinoma. Bladder biopsies and metastatic evaluation are negative. The next step is:

ureteroscopic laser ablation of tumor.

percutaneous tumor resection.

partial nephrectomy.

nephroureterectomy and dialysis.

nephroureterectomy, cystectomy with ileal conduit and dialysis.

D

This patient has a high-grade tumor in the renal pelvis. Although one would like to avoid making him anephric, the chance of tumor control with conservative measures is poor because of the size and grade of the tumor. Partial nephrectomy would be technically difficult and would result in a high likelihood of tumor recurrence

given the multifocal nature of the disease. Systemic chemotherapy and endoscopic treatment must be considered second choices if he refuses nephrectomy. Although his bladder remains at risk for TCC recurrence, cystectomy is not indicated at this time and may be used during renal transplantation if he remains disease-free for two years

Sagalowsky AI, Jarrett TW: Management of urothelial tumors of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 49, p 1653.

Questions

A 17-year-old boy with membranous nephropathy has generalized anasarca. The serum creatinine is 1.7 mg/dl. A 24-hour urine collection contains 6.8 g protein. Other likely associated findings include:

hypoproteinemia, hypocholesterolemia.

hypercholesterolemia, increased total body sodium.

hypovolemia, reduced total body sodium.

hyponatremia, hyperkalemia.

hypovolemia, metabolic acidosis.

B

This patient has nephrotic syndrome with generalized anasarca. In this disorder, increased permeability of the glomerular capillary basement membrane leads to leakage of plasma protein into the glomerular filtrate and urine. The resulting hypoproteinemia causes a drop in circulatory volume. This leads to decreased renal perfusion and activation of the renin-angiotensin system with subsequent release of aldosterone. Sodium is retained and the temporary hyperosmolality increases ADH secretion. Total body sodium and water increase, but the serum sodium does not usually change because the increased fluid goes into the extracellular space, causing edema. The secondary aldosteronism may also cause an increased bicarbonate, alkalosis, and hypokalemia. The nephrotic syndrome is also characterized by an increase in plasma lipid concentration which includes cholesterol, phospholipids, and triglycerides.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3225.

Questions

An 85-year-old woman with an ileal conduit has recurrent sepsis due to pyocystis despite weekly bladder irrigations with antibiotic solution. Cystoscopy demonstrates no evidence of malignancy. The next step is:

prophylactic oral antibiotics.

intravesical silver nitrate.

suprapubic cystostomy.

vaginal vesicostomy.

simple cystectomy.

D

Pyocystis occurs in approximately 20%25 of patients who undergo supravesical diversion. Patients typically have a malodorous discharge and may develop sepsis. If conservative measures such as routine bladder irrigations fail, vaginal vesicostomy (creation of a large vesico-vaginal fistula) is an effective method of preventing pyocystis. This is an especially good alternative for an elderly or high risk patient. A stapling device can be used to quickly perform this operation. Absorbable staples should be used if the patient is sexually active.

Doherty AP, Bellringer J: Stapled vaginal vesicostomy for pyocystis in the defunctioned female bladder. BJU INTERN 1999;83:339-340.

Questions

A 49-year-old man has a persistently palpable 2 cm right inguinal lymph node following circumcision and six weeks of antibiotics for a grade 1 non-invasive squamous carcinoma of the penis confined to the prepuce. CT scan of abdomen and pelvis and chest x-ray are negative. The next step is:

needle biopsy of lymph node.

additional six weeks of antibiotics.

bilateral inguinal lymphadenectomy.

right ilioinguinal lymphadenectomy.

bilateral ilioinguinal lymphadenectomy.

A

Patients with CIS, or non-invasive low grade (grade 1 or 2) penile cancers have an extremely low risk of regional node metastasis. In patients with non-invasive low grade tumors following treatment , if there is palpable adenopathy, a course of antibiotics is warranted and often the adenopathy will resolve. Since the incidence of inguinal metastasis in this group of patients is essentially anecdotal, if adenopathy persists after antibiotics, needle biopsy should be performed. If the needle biopsy is non-informative, an excisional biopsy is recommended. If biopsy is positive, bilateral lymphadenectomy is warranted. If negative, these patients can be observed.

Pettaway CA, Lynch DF Jr, Davis JW: Tumors of the penis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap

31, p 980.

Questions

A 35-year-old man has a serum creatinine of 15 mg/dl and a serum potassium of 7.5 mEq/l. Electrocardiogram shows peaked T waves and a widened QRS complex. The most appropriate initial treatment of his hyperkalemia is:

hemodialysis.

Kayexalate enema.

intravenous sodium bicarbonate and calcium gluconate.

intravenous concentrated glucose and regular insulin in the same infusion.

intravenous concentrated glucose and regular insulin in separate infusions.

C

Most (99%25) of total body potassium is located within cells. Extracellular potassium is closely regulated to maintain resting membrane potentials that are critical to nerve and muscle function. Potassium is secreted by the distal convoluted tubule and collecting duct. When this mechanism is impaired in renal failure, hyperkalemia (plasma K in excess of 5.3 mEq/l) occurs. This patient is nearing a crisis in terms of cardiac function. Calcium gluconate immediately but transiently mitigates the potassium effect. Sodium bicarbonate lowers plasma K%2b concentration within an hour. Hemodialysis and Kayexalate cannot be initiated as quickly. Insulin and glucose also take 30-60 minutes to work.

Rose BD, Rennke HG: RENAL PATHOPHYSIOLOGY - THE ESSENTIALS. Baltimore, Williams %26 Wilkins, 1994, pp 176-184.

Catteran D, Turner P: Primary glomerular disease, in Rakel RE, Bope, ET (eds): CONN'S CURRENT THERAPY, ed 6. Philadelphia, Saunders, 2006, chap 10, p 880.

Questions

The presumed mechanism of action of sodium pentosan polysulfate (Elmiron®) is:

decreased mast cell degranulation.

increased urothelial cell proliferation.

decreased cytokine expression in bladder.

increased glycosaminoglycan expression in bladder.

decreased antiproliferative activity.

D

One theory of interstitial cystitis is increased bladder urothelial permeability due to a diminished urothelial glycosaminoglycan (GAG) layer. Oral sodium pentosan polysulfate (Elmiron) presumably increases the GAG layer and thereby decrease bladder permeability. However, randomized prospective trials have only shown modest efficacy of sodium pentosan polysulfate.

Hanno PM: Painful bladder syndrome/Interstitial cystitis and related disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 10, p 330.

Questions

The MRI signal intensity seen for various parts of the prostate on T2-weighted images are best described as:

Peripheral Zone: high Central Zone: intermediate Seminal Vesicles: high.

Peripheral Zone: intermediate Central Zone: high Seminal Vesicles: high.

Peripheral Zone: high Central Zone: intermediate Seminal Vesicles: intermediate.

Peripheral Zone: high Central Zone: high Seminal Vesicles: intermediate.

Peripheral Zone: intermediate Central Zone: high Seminal Vesicles: intermediate.

A

Peripheral Zone: high
Central Zone: intermediate
Seminal Vesicles: high
Is the Correct Answer.

Prostate MRI with endorectal coil may be a useful modality for evaluation of prostate cancer. Specifically, the test may be useful for identifying extraprostatic disease and intraprostatic lesions. On T1 images, there is little intraprostatic detail but on T2 images, there are differences in signal intensity that allow the reader to distinguish between the various anatomic components of the gland and identify the location of lesions. Specifically, on T2 images, the peripheral zone has high signal intensity, the central zone has intermediate intensity, and the seminal vesicles have high signal intensity, as do the neurovascular bundles and the dorsal venous complex.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, p 111.

Questions

A four-year-old boy with a previously treated PUV and hydronephrosis has nocturnal enuresis and some daytime wetness. A 24-hour urine collection shows a volume of 1800 ml. The best treatment is:

vasopressin.

salt restriction.

postvoid catheterization.

decrease oral fluid intake.

increase frequency of voiding.

E

Patients with a concentrating defect related to early obstruction (nephrogenic diabetes insipidus) will not be able to significantly decrease urine volume with mild fluid restriction. Salt restriction as well will not usually result in reduction in urine volume. These patients, by definition, will not respond to vasopressin. Postvoid catheterizations would be useful only if incomplete voiding is suspected (which is sometimes the case with the previously resected valve patients). Of the choices offered, more frequent voidings may result in resolution of both the daytime and nighttime wetting. It may be necessary, however, for this boy to get up once or twice per night. The character of this bladder will have major impact on therapy. If the bladder has reduced compliance with a reduced volume, antimuscarinic therapy should be considered.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3587.

Questions

A 65-year-old woman has intermittent dysuria and urgency. There is no association with sexual activity, and there are no urinary symptoms between episodes. Voided midstream urinalyses while symptomatic reveal occasional RBCs, 1 to 3 WBCs, and 1 to 3 squamous epithelial cells per hpf. Initial management should be:

urine culture during symptomatic episodes.

prophylactic antibiotics.

cystoscopy.

renal ultrasound.

assess PVR.

A

There is no documentation of infection, and suppressive antibiotics should not be considered until infections are documented. Further evaluation of the bladder and upper tract are not needed yet, given the lack of

symptoms between episodes and the absence of hematuria, although additional assessment may be appropriate later. An additional test that might also be considered is urinalyses of a catheterized urine sample, given the apparent contamination of the voided midstream urinalyses by vaginal epithelial cells. If the urine culture is negative while the patient is symptomatic, then a catheterized specimen is not necessary.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 238-242.

Questions

A 60-year-old man with clinical T2N0M0 bladder cancer elects radical cystectomy and Indiana Pouch diversion. Pre-operative evaluation should include:

sigmoidoscopy.

barium enema.

colon biopsy.

colonoscopy.

upper GI with small bowel follow through.

D

Preoperative colonoscopy is indicated in procedures that may require the use of large bowel. Sigmoidoscopy only is insufficient because more proximal disease may leave the patient with a short colon syndrome. A barium enema may miss small polyps. The surgeon should always be ready for unexpected anatomic variations that may cause a change in plan.

Benson MC, McKiernan JM, Olsson CA: Cutaneous continent urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 81, pp 2579-2580.

Questions

Following ablation of a PUV in a newborn male, difficulty passing a catheter into the bladder is most likely due to:

incompletely resected urethral valves.

a false passage.

a prostatic utricle.

hypertrophied bladder neck.

external sphincter spasm.

D

Bladder outlet obstruction, as seen with a PUV, will often result in detrusor hypertrophy as well as hypertrophy of the bladder neck. Bladder neck hypertrophy creates an angulation of the posterior urethra anteriorly which can result in a difficult catheterization as the catheter hits up against the wall of the hypertrophied bladder neck. It is important to recognize this when trying to catheterize a child with a history of a PUV even if it has been many years following valve ablation.

Glassberg KI, Horowitz M: Urethral valves and other anomalies of the male urethra, in Belman AB, King LR, Kramer SA (eds): CLINICAL PEDIATRIC UROLOGY, ed 4. London, Martin Dunitz Ltd, 2002, chap 28, p 899.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3586.

Questions

A healthy 32-year-old sexually active man has two 3.0 mm warts on his penile shaft. The next step is:

observation.

examination of his sexual partner.

type-specific HPV nucleic acid testing.

biopsy.

chemical or surgical removal.

E

No definitive evidence suggests that any of the available treatments is superior to any other for genital warts. While treatment may reduce infectivity, the potential for infectivity is probably not eradicated. Diagnosis of genital warts can be confirmed by biopsy, although biopsy is needed only under certain circumstances: for example, the warts do not respond to standard therapy; the disease worsens during therapy; the patient is immunocompromised; or warts are pigmented, indurated, fixed, and ulcerated. According to CDC guidelines, examination of sex partners is not necessary for the management of genital warts because no data indicate that reinfection plays a role in recurrences, and no data support the use of type-specific HPV nucleic acid tests in the routine diagnosis or management of visible genital warts.

Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. MMWR 2002;51(No. RR-6): pp 53-55.

Questions

A 56-year-old man with invasive bladder cancer desires a continent urinary diversion at the time of cystectomy. He has minimal proteinuria and a creatinine of 2.3 mg/dl. He may be an appropriate candidate for continent diversion if which of the following parameters are obtained for GFR (inulin clearance test), urinary acidification (in response to ammonium chloride loading) and urine osmolality (in response to water deprivation):
<tab>GFR (ml/min)<tab>pH (uOSM)<tab>uOSM (OSM/kg)

39<tab><tab>4.9<tab><tab>750

31<tab><tab>6.6<tab><tab>500

45<tab><tab>5.5<tab><tab>350

40<tab><tab>6.3<tab><tab>550

30<tab><tab>5.5<tab><tab>650

A

GFR (ml/min): 39
pH (uOSM):4.9
uOSM (OSM/kg):750
Is the Correct Answer.

Chronic renal insufficiency is a relative contraindication to continent urinary diversion as more renal function is necessary with a retentive type of diversion as compared to a short ileal conduit. In general, patients without proteinuria and a creatinine of less than 2.0 mg/dl do well with continent urinary diversion . In patients with a creatinine over 2.0 in whom a continent urinary diversion is being considered, a more detailed analysis of the other components of renal function is necessary. Patients with minimal proteinuria, a GFR over 35 ml/min, a urine pH less than 5.8 with acid loading, and a urine osmolality of over 600 mOSM in response to water deprivation are appropriate candidates for continent urinary diversion .

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2563-2564.

Questions

The maximal allowable dose of bupivacaine (Marcaine®) in mg/kg is:

1.00.

1.50.

2.50.

4.00.

6.00.

C

Bupivacaine is a long acting local anesthetic. It is widely used for regional neural blocks and caudal blocks for postoperative analgesia. Its effect endures for eight hours or more. The toxicity of bupivacaine involves hypertension and heart block which is difficult to reverse. A dose above 2.5 mg/kg should not be exceeded. The mean seizure dose in monkeys is 4.4 mg/kg and the LD 50 in mice was 6 mg/kg intravenously.

Zwass MS: Regional anesthesia in children. ANESTH CLIN N AM 2005;23:818.

Questions

An important source of error in using the nitrite urinary dipstick is:

extended exposure of the dipstick to room air.

insufficient urinary nitrate from the diet.

lack of bacterial nitrate production.

degradation of urinary nitrite in the bladder overnight.

interference from leukocyte esterase.

A

While the nitrite urinary dip stick is considered to have good specificity for detecting a UTI, it has poor sensitivity. This is because the nitrite test strip relies on the reduction of urinary nitrate to nitrite by bacterial production of nitrate reductase. A false negative will be obtained if bacteria do not produce nitrate reductase, if bladder urine incubation time is insufficient for the reduction to take place, and if bacterial numbers are too low (the latter two problems are associated with increased urinary frequency from UTI). Urinary nitrate from the normal human diet does not cause a positive nitrite result. Exposure of the dip stick to room temperature and humidity (i.e. not closing the cover on the bottle between uses) for a week will cause a false positive.

Gallagher EJ, Schwartz E, Weinstein RS: Performance characteristics of urine dipsticks stored in open containers. AM J EMERG MED 1990;8(2):121-123.

Questions

A 32-year-old woman with a solitary kidney underwent urinary diversion with an ileal conduit as a child. She has stable, moderate hydronephrosis, but her serum creatinine has risen to 2.8 mg/dl. A loopogram shows no reflux and no residual urine. A diuretic renogram reveals delay in uptake of the radiopharmaceutical and poor response to diuretic with a T1/2 of 22 minutes. The next step is:

revision of the ileal conduit.

antegrade pressure perfusion study.

renal biopsy.

non-contrast CT scan.

hydrate and repeat the renogram.

B

This woman most likely has chronic renal insufficiency and the renogram reflects this condition. Diseased kidneys may respond poorly to diuretic in the absence of obstruction. The only way to establish conclusively if obstruction exists would be to place a nephrostomy tube. A pressure-flow study can then be performed and the serum creatinine observed. A renal biopsy, if performed, is likely to show focal segmental sclerosis and/or chronic pyelonephritis but this is not helpful in management.

Weiss RM: Physiology and pharmacology of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 55, pp 1909-1914.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2562-2566.

Questions

An eight-year-old girl is evaluated for microscopic hematuria. Abdominal films demonstrate bilateral nephrocalcinosis with fine flecks of calcium appearing in most papillae. Renal function is normal. The most likely diagnosis is:

distal RTA.

idiopathic hypercalciuria.

Fanconi syndrome.

proximal RTA.

hyperparathyroidism.

A

Nephrocalcinosis occurs primarily in children with distal RTA. This is characterized by impaired hydrogen ion excretion in the distal collecting duct. It rarely occurs in proximal RTA which results from an impairment in proximal tubular bicarbonate reabsorption or in the Fanconi syndrome where excessive amounts of amino acids are excreted along with organic anions such as citrate which tend to prevent calcium precipitation. Idiopathic hypercalciuria and primary hyperparathyroidism rarely cause nephrocalcinosis, but when present

the acidification defect found in distal RTA usually coexists.

Thomas SE, Stapleton FB: Urolithiasis in children, in Gonzales ET, Bauer SB (eds): PEDIATRIC UROLOGY PRACTICE, Philadelphia, Lippincott Williams %26 Wilkins, 1999, chap34, pp 607-619.

Questions

When renal exploration for penetrating trauma is performed without initial renal vascular control, the result, compared to early vascular control, is:

decreased operative time.

increased blood loss.

increased renal loss.

increased blood transfusions.

decreased mortality.

A

Traditionally, it has been taught that early vascular control of the renal hilum allows for safe renal exploration. It has been assumed that early vascular control decreases blood loss, renal loss, need for blood transfusions and mortality. Most data, however, are anecdotal and based on literature review. A randomized prospective study of 56 patients during a 53 month period was undertaken comparing outcomes of those patients with early vascular control versus those with renal exploration without initial renal vascular control. Those patients who underwent early vascular control required increased operative time and required more blood transfusions due to increased blood loss. There was no increase in mortality in those patients explored without first obtaining vascular control. Renal loss was similar between the two groups. The thinking that penetrating renal trauma should be approached after establishing hilar control may not only increase operative time but may increase the risk of blood loss and need for blood transfusions. These observations may not hold true for blunt trauma or less severe kidney injuries, in which the risk of nephrectomy is lower.

Gonzalez RP, Falimirski M, Holevar MR, Evankovich C: Surgical management of renal trauma: Is vascular control necessary? J TRAUMA: INJURY, INFECTION %26 CRITICAL CARE 1999;47(6):1039-1044.

Santucci,RA, Wessells H, Bartsch G, et al: Evaluation and management of renal injuries: consensus statement of the renal trauma subcommittee. BJU INTERN, 2004;93:937-954.

Questions

A 62-year-old man underwent an ileal conduit using a loop (Turnbull) stoma. He has abdominal discomfort and a large parastomal hernia after two failed repairs. The next step is:

conversion to colon conduit.

application of abdominal binder.

closure of the fascial defect with synthetic mesh graft.

transposition of stoma to opposite side of abdomen.

conversion to standard end-on stoma.

D

Parastomal hernias occur more commonly with loop than end-on stomas. The most effective method of such hernia management is by relocation of the stomal site to the other side of the abdominal wall and by closure of the hernia. Meticulous closure of the rectus fascia is the best method of preventing this complication.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2553-2554.

Helal M, Austin P, Spyropoulos E, Pow-Sang J, et al: Evaluation and management of parastomal hernia in association with continent urinary diversion. J UROL 1997;157:1630-1632.

Questions

The most common long-term problem in neonates with unilateral renal vein thrombosis is:

nephrotic syndrome.

hypertension.

renal scarring.

glomerulonephritis.

recurrent renal infection.

B

Renal vein thrombosis in childhood most often presents with gross hematuria in association with a flank mass, thrombocytopenia, metabolic acidosis, tachypnea, pallor, failure to thrive, proteinuria, and diminished renal function. Bilateral renal vein thrombosis in childhood is uncommon. Conservative (non-surgical, non-interventional) management results in a survival rate approaching 90%25. Hypertension, the most common long-term problem encountered after unilateral renal vein thrombosis, may be seen in 15%25. Delayed nephrectomy appears the most successful management for hypertension after unilateral renal vein thrombosis.

Kenet G, Nowak-Gottl U: Fetal and neonatal thrombocytopenia. OBST GYN CLIN N AM 2006, 33, p 460.

McKenna PH, Ferrer FA: Perinatal and postnatal urologic emergencies, in Docimo SG,

Canning DA Khoury AE (eds): CLINICAL PEDIATRIC UROLOGY, ed 5. London, Informa Healthcare, 2007, chap 6, p 88.

Goldberg NA and Bernard JJ: Venous thromboembolism in children. Ped Clin NA, 2008, 55(2), P 316.

Questions

A 22-year-old man suffered a pelvic fracture and urethral disruption five months ago. Combined retrograde urethrography and antegrade cystography reveals complete obliteration of the posterior urethra with a 2 cm defect. He cannot maintain an erection sufficient for intercourse. Prior to definitive urethral reconstruction, evaluation should include:

dynamic infusion cavernosometry.

nocturnal penile tumescence testing.

in office intracavernosal injection of alprostadil.

penile duplex Doppler ultrasound with intracavernosal injection.

pelvic MRI scan.

D

Erectile dysfunction (ED) is common in patients with pelvic fracture associated urethral injury. Mechanisms include neurogenic and vasculogenic injury, and the latter has implications for urethral reconstruction. Posterior urethroplasty for prostatomembranous urethral distraction defects requires mobilization of the corpus spongiosum and depends on retrograde blood flow through the dorsal arteries and glans penis to the distal urethra. Insufficiency of the spongiosal circulation is associated with failure of bulboprostatic anastomotic urethroplasty. Erectile function should be assessed and documented in such patients before attempting urethroplasty. If erections are normal, then inflow from the internal pudendal artery-common penile artery- dorsal penile arterial tree is considered to be intact. For patients with ED, in the majority erectile dysfunction is caused by disruption of the cavernous nerves with sparing of arterial inflow. However, in cases of cavernosal arterial insufficiency, the disruption of the internal pudendal artery will lead to insufficient arterial inflow to the dorsal arteries; as a result, experts recommend arterial revascularization prior to urethroplasty in cases of diminished vascular inflow to the dorsal arteries.

Cavernosometry is a significantly more invasive vascular test, and is not the investigation of choice in this patient. Nocturnal penile tumescence testing is a nonspecific test that will not identify specific vasculogenic etiologies of ED. In office intracavernosal injection of alprostadil will not differentiate arterial from venous mechanisms of vasculogenic ED. A complete response is still possible in cases of arterial insufficiency. Penile duplex Doppler ultrasonography can effectively diagnose cavernosal arterial insufficiency and may allow imaging of the dorsal penile arteries as well. Pelvic MRI scan has been used to identify crural disruption post pelvic fracture but does not have the resolution necessary to delineate arterial anatomy of the pudendal vascular tree.

Shenfeld OZ, Kiselgorf D, Gofrit ON, et al: The incidence and causes of erectile dysfunction after pelvic fractures associated with posterior urethral disruption. J UROL 2003;169:2173-2176.

Questions

A 70-year-old man undergoes transperineal brachytherapy with ¹²⁵I seeds for localized prostate cancer. The preoperative AUA Symptom Score was 18. Three months after treatment he has significant obstructive voiding symptoms and a postvoid residual of 250 ml. There is no improvement with oral terazosin. The best management at this time is:

bicalutamide (Casodex).

tamsulosin (Flomax).

CIC.

finasteride (Proscar).

TURP.

C

Urinary retention after transperineal brachytherapy is common in men with significant pre-treatment obstructive symptoms and is best managed by CIC. ¹²⁵I has a half-life of 60 days and TURP has been suggested to be contraindicated in the first nine months after treatment because of the risk of radioactive exposure to the surgeon, operating room personnel, and pathologists. It is well demonstrated that patients with retention following seed implant may resolve retention following six to twelve months of CIC. Given the increased risk of TUR following RT, it is preferable to observe the patient prior to surgical intervention. Response rates to all alpha blockers are similar and switching to another agent of the same class is unlikely to help. Either oral bicalutamide or finasteride will take several months to shrink the prostate.

Terk MD, Stock RG, Stone NN: Identification of patients at increased risk for prolonged urinary retention following radioactive seed implantation of the prostate. J UROL 1998;160:1379.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 100, p 3006.

Questions

A newborn boy has an enlarged tongue, visceromegaly, and an enlarged left leg. The next step in management is:

VCUG.

MRI scan.

serial abdominal ultrasounds.

alpha-fetoprotein and beta-hCG.

karyotype.

C

Beckwith Wiedemann syndrome is typified by macroglossia and visceromegaly. This includes hepatic enlargement and adrenal cortical cytomegaly. In addition, somatic overgrowth is common. Karyotype is normal. Many patients will have hemihypertrophy. Approximately 20%25 of the patients with Beckwith Wiedemann syndrome develop malignancies. These include Wilms' tumor, adrenocortical neoplasms, and hepatoblastoma. Testicular tumors have not been reported with increased frequency in these patients. Serial imaging will help detect tumors at an early stage of development. Ultrasound is sufficient and VCUG and MRI scans are overly aggressive.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3885-3886.

Questions

A 33-year-old man has sharply marginated, dusky red patches on his inner thighs with complaints of pruritis. The scrotum and penis are not involved, and only mild inflammation is present in the inguinoscrotal folds. The peripheral borders of the patches are elevated and erythematous. The treatment of choice is:

topical nystatin (Mycostatin®).

topical tolnaftate (Tinactin®).

oral fluconazole (Diflucan®).

topical triamcinolone (Aristocort®).

oral prednisone (Deltasone®).

B

The clinical description is most consistent with a tinea cruris infection caused by a dermatophyte. Trichophyton rubrum, Trichophyton mentagrophytes and Epidermophyton floccosum are the most common causative organism. This condition is relatively common and should be easily recognized by urologists. Topical tolnaftate is specific treatment for this fungus. Topically applied nystatin is effective only in candidiasis. Orally administered fluconazole is not indicated. Steroid therapy should not be administered.

Link RE: Cutaneous diseases of the external genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 13, pp 419-426.

Questions

An asymptomatic 43-year-old man with a PSA of 5.4 ng/ml has diffuse inflammation noted on prostate biopsy. The next step is:

PSA surveillance.

empiric antibiotics.

NSAIDS.

repeat biopsy.

5-alpha-reductase inhibitor.

A

Inflammation is found in up to 30%25 of prostate biopsies. Its presence could be suggestive of infection, but in the absence of clinical symptoms, empiric antibiotic therapy is not warranted. Anti-inflammatory drugs have been evaluated for potential chemotherapeutic effect, but there is no evidence that such drugs are indicated in the treatment of asymptomatic inflammation. It has also been postulated that inflammation may serve as an early precursor to prostate cancer, but as of yet, repeat biopsy for inflammation observed on biopsy is not routinely recommended. In this case, continued observation with follow-up PSA measurement is the appropriate next therapy.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2912.

Questions

Renal blood flow is autoregulated primarily by:

renal innervation.

the macula densa.

endothelin.

efferent arteriolar tone.

afferent arteriolar tone.

E

Autoregulation of GFR and renal blood flow occurs primarily through variation in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFR over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1131.

Questions

During routine serologic screening, a 28-year-old sexually active man has a positive VDRL test. Confirmation of the test result should be made with:

careful history and physical examination.

the automated reagin test (ART).

repeat VDRL testing.

T. pallidum immobilization test (TPI).

fluorescent-treponemal antibody-absorbed test (FTA-ABS).

E

Nontreponemal, serologic tests like the VDRL and the Rapid Plasma Reagin (RPR) test are inexpensive, easy to perform, and are sensitive (except in those with very early disease or in those who acquired the disease in the distant past). However, false positive tests are not uncommon and patients with positive tests need to undergo more careful testing to confirm the diagnosis before treatment is undertaken. Transient false positive reaginic tests may be encountered in patients with acute viral infections (hepatitis, mononucleosis, varicella, herpes simplex or measles), malaria or during pregnancy. Sustained false-positive tests may occur in those with autoimmune diseases, intravenous drug abusers, the elderly and in those with certain chronic diseases (multiple myeloma or advanced malignancy). The false positive rate for VDRL is 1-2%25. All positive tests should be confirmed with treponemal testing using T. pallidum particle agglutination (TP-PA) or fluorescent treponemal antibody absorbed (FTA-ABS) testing.

Hutchinson CM, Hook E: Syphilis in adults. MED CLIN N AM 1990;74:1389-1416. Frenkl T, Potts J: Sexually transmitted diseases, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 11, pp 375-379.

Questions

A 75-year-old man has a rising PSA following external beam radiotherapy for prostate cancer. His PSA level nadirs to 0.4 ng/ml, and is measured at 0.7 ng/ml, 2.1 ng/ml, and 5.4 ng/ml at 9, 12, and 15 months following radiotherapy, respectively. The next step is:

continued observation.

prostate biopsy.

lymph node dissection.

salvage cryoablation.

hormonal ablation.

E

At the time of biochemical relapse following local therapy, the PSA velocity or doubling time provides a strong prediction of the likelihood of disease-related morbidity and mortality. Individuals with PSA doubling time less than three months are most likely to develop bone metastases and ultimately experience disease-related mortality. In these individuals, early intervention with systemic therapy, in this case hormonal ablation, is advisable. The high likelihood of microscopic metastatic disease predicts a low likelihood of local recurrence alone. As such, salvage cryoablation of the prostate would be unlikely to influence disease outcome. Prostate biopsy would not rule out the possibility of distant metastatic disease and therefore would not influence disease management. Lymph node dissection would not rule out distant metastases.

D'Amico AV, Moul J, Carroll PR, et al: Prostate specific antigen doubling time as a surrogate end point for prostate cancer specific mortality following radical prostatectomy or radiation therapy. J UROL 2004;172:42-46.

Patel R, Lepor H, Thiel RP, Taneja SS: PSA velocity predicts the likelihood of response to salvage radiotherapy for biochemical relapse after radical prostatectomy. UROL 2005;65(5):942-946.

Questions

A neonate with a 10 cm renal mass has hypertension and a pulse of 200 bpm The likely etiology of his hypertension is:

renal vein thrombosis.

neuroblastoma.

congenital mesoblastic nephroma.

obstructive hydronephrosis.

pheochromocytoma.

B

Congenital neuroblastoma may present in a similar fashion as a pheochromocytoma, with symptoms produced by secretion of catecholamines. These symptoms have been reported occasionally in pregnant mothers with fetuses having catecholamine-secreting neuroblastomas. Congenital mesoblastic nephroma is not associated with paraneoplastic syndromes. Hydronephrosis and multicystic kidneys are rarely associated with hypertension but would not exhibit a hyperdynamic state with a pulse of 200. Renal vein thrombosis causes a renal mass associated with hematuria, anemia, and thrombocytopenia.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3871-3872.

Question 1 of 150
During bladder filling, intraluminal ureteral pressure:

A: increases, and the frequency of contractions increase.

B: increases, and the frequency of contractions decrease.

C: increases, and the frequency of contractions is unchanged.

D: decreases once the frequency of contractions decrease.

E: remains stable while ureteral contractions decrease.

A: "increases, and the frequency of contractions increase." is correct.

As the bladder fills, resting pressure within the intravesical ureter increases. This results in an increase in intraluminal (ureteral) pressure and an increase in the frequency of ureteral contractions. The end result is continued excretion of urine into the filling bladder.

Weiss RM: Physiology and pharmacology of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 55, pp 1908-1909.

Question 2 of 150
A 54-year-old man who underwent a successful open pyeloplasty 20 years ago develops recurrent flank pain. Diuretic renography reveals recurrent UPJ obstruction with 30% ipsilateral renal function. Retrograde pyelogram reveals a 1 cm UPJ stricture. The next step is:

A: balloon dilation.

B: endopyelotomy.

C: re-do pyeloplasty.

D: ureterocalycostomy.

E: nephrectomy.

B: "endopyelotomy." is correct.

This is an excellent patient for an endopyelotomy. For "secondary" UPJ obstruction, it is reasonable to recommend an open or laparoscopic approach to any patient who has failed a primary endourologic management and an endourologic approach to those who have failed an open or laparoscopic repair. The results of endourologic management in this setting are generally excellent. Ureteral stenting and balloon dilation are not good long-term options and nephrectomy is not necessary at this point.

Hsu THS, Streem SB, Nakada SY: Management of upper urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 38, p 1232.

Question 3 of 150
A 65-year-old man with clinical T2 bladder cancer desires bladder preservation. After a complete transurethral resection, he undergoes induction radiation and chemotherapy with 5-FU and cisplatin. Three months later, he has another T2 tumor that is completely resected. The next step is:

A: additional radiation.

B: taxane-based chemotherapy.

C: taxane-based chemotherapy and radiation.

D: cisplatin-based chemotherapy and radiation.

E: radical cystectomy.

E: "radical cystectomy." is correct.

Attempts at bladder sparing must be selective; not all patients with muscle invasive disease are candidates. Favorable selection criteria include tumors that can be substantially removed by TUR and making certain that a complete response following initial chemoradiation induction is achieved, as measured by follow-up cytology and cystoscopic biopsies. Only if there is a complete response with induction therapy is consolidation chemotherapy recommended. If residual disease is found, cystectomy is recommended.

Kaufman DS, Althausen AF, Heney NM, et al: Selective bladder preservation by combined modality treatment, in Richie JP, D'Amico AV (eds): UROLOGIC ONCOLOGY. Philadelphia, Elsevier Saunders, 2005, chap 22, pp 389-390.

Question 4 of 150
A 47-year-old man with diabetes mellitus has erectile dysfunction, decreased vibratory sensation in his feet and fasting blood sugars over 300 mg/dl. The best treatment of his erectile dysfunction is:

A: exogenous testosterone.

B: exogenous gonadotropins.

C: improved diabetic control.

D: a daily Vitamin B complex.

E: penile prosthesis.

E: "penile prosthesis." is correct.

Exogenous androgen, gonadotropin and vitamin therapy do not restore potency in the diabetic male. Even with good control of the underlying diabetes, erectile dysfunction usually persists. Alternative therapies such as sildenafil citrate, intracavernous injection therapy, and a vacuum erection device can also be effective in many of these patients. Some diabetic patients will ultimately require a penile prosthesis.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 21, pp 746-747.

Question 5 of 150
A 48-year-old man and his 44-year-old wife wish to have another child. Fifteen years previously, he had a vasectomy and four years ago he failed vasectomy reversal. No sperm were found in the vas at the time of surgery. The wife's menses are regular. The best chance for pregnancy is:

A: open epididymal aspiration with IVF and ICSI.

B: needle aspiration of the testicle with IVF and ICSI.

C: gynecologic evaluation of wife then bilateral vasoepididymostomy if her evaluation is normal.

D: donor eggs and needle aspiration of the testicle with IVF and ICSI.

E: re-do microscopic two-layer vasovasostomy.

D: "donor eggs and needle aspiration of the testicle with IVF and ICSI." is correct.

Results of standard IVF or ICSI are extremely poor in women over age 40. Current data demonstrate a 4% live birth rate per cycle in 44 year old women. With donor eggs the pregnancy rate is approximately 50%. The overall rate of pregnancy after vasoepididymostomy is 30-50% but is dramatically lower with a wife of age 40.

Assisted Reproductive Technology (ART) Report: Section 4-ART cycles using donor eggs. Centers for Disease Control and Prevention, 2006, figure 44. http://www.cdc.gov/ART/ART2006/sect4_fig44-48.htm#f45

Question 6 of 150
A three-year-old girl has a febrile UTI. Ultrasound and CT scan are shown. The next step is:

A: DMSA scan.

B: nephrectomy.

C: antibiotics and repeat ultrasound in three months.

D: percutaneous aspiration.

E: renal ultrasound of parents.

B: "nephrectomy." is correct.

The imaging studies show a large complex cystic lesion that is not the result of an infectious process. The lesion is not typical for inherited cystic disease and parental evaluation is of no value. The differential diagnosis is either a cystic Wilms' vs. a multilocular cystic nephroma. Diagnosis and treatment should be made based on the pathology following a nephrectomy.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, pp 3340-3343

Question 7 of 150
The renal artery occlusive disease most likely to be associated with stable renal function is:

A: intimal fibroplasia.

B: medial hyperplasia.

C: medial fibroplasia.

D: perimedial fibroplasia.

E: atherosclerotic disease.

C: "medial fibroplasia." is correct.

Patients with medial fibroplasia seldom have an increase in serum creatinine, reduction in kidney size, or loss of renal function. Despite the progressive nature of this disease, progressive arterial occlusion is relatively rare. Therefore, renal revascularization for preservation of renal function need not be routinely undertaken even for patients with bilateral disease. Operative intervention or transluminal angioplasty can be limited to those patients with hypertension refractory to control with drug therapy. Progressive ischemic nephropathy leading to loss of function is the end stage of the pathophysiology of perimedial or intimal fibroplasia, medial hyperplasia, and atherosclerotic disease.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, chap 36, pp 1159-1160.

Question 8 of 150
A 45-year-old woman has a sudden onset of severe right flank pain. CT scan shows a right perirenal hematoma. The most likely underlying cause is:

A: renal adenocarcinoma.

B: renal angiomyolipoma.

C: renal artery aneurysm.

D: polyarteritis nodosa.

E: complex renal cyst.

A: "renal adenocarcinoma." is correct.

The most common cause of retroperitoneal hemorrhage is rupture of an abdominal aortic aneurysm. Renal and adrenal diseases account for the second and third most common causes respectively. Although both malignant and benign renal tumors may rupture, renal adenocarcinomas account for the majority of hematomas. Follow-up CT imaging after resolution of the hematoma will be necessary to rule-out the presence of a renal tumor that can be hidden by the retroperitoneal and perirenal hematoma.

Zhang JQ, Fielding JR, Zou, KH: Etiology of spontaneous renal hemorrhage: A meta-analysis. J UROL 2002;167:1593-1596.

Question 9 of 150
A 45-year-old obese man has hypertension, new onset diabetes and general weakness. Two 24-hour urine collections show elevated cortisol levels. The next step is:

A: low-dose dexamethasone test.

B: late afternoon plasma corticotrophin and cortisol measurement.

C: high-dose dexamethasone test.

D: metyrapone test.

E: abdominal CT scan.

B: "late afternoon plasma corticotrophin and cortisol measurement." is correct.

Elevated urinary cortisol levels confirm the diagnosis of Cushing's syndrome but do not provide information about the etiology of the condition. The next step to determine the etiology is to measure late afternoon or midnight plasma corticotrophin and cortisol levels. This will determine if the Cushing's is ACTH-dependent or ACTH-independent. If ACTH levels are not elevated, then the likely source is adrenal and an abdominal CT scan with attention to the adrenals is appropriate. However, it is preferable and more efficient to determine if ACTH levels are elevated, as the etiology of the Cushing's is unlikely to be of adrenal origin if ACTH is elevated. High-dose dexamethasone test is indicated if ACTH levels are elevated to determine if the source of the elevated corticotrophin is pituitary. Similarly, the metyrapone test is used to assess whether excess ACTH secretion is pituitary or ectopic in nature and is only appropriate if serum corticotrophin levels are elevated.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1833.

Question 10 of 150
In a paraplegic man with a T12 spinal cord transection, the major complication of external urethral sphincterotomy is:

A: significant hemorrhage.

B: acute urinary tract sepsis.

C: priapism.

D: impotence.

E: autonomic dysreflexia.

A: "significant hemorrhage." is correct.

Significant hemorrhage is the major complication to be anticipated in the performance of an external sphincterotomy. Autonomic dysreflexia would not be anticipated to be a major problem because of the level of the lesion. Autonomic dysreflexia is seen with spinal cord lesions that occur above the level of the sympathetic outflow tract (T6). With appropriate antibiotic coverage, acute urinary tract sepsis is usually not a major problem. Likewise, priapism or impotence are rarely if ever encountered during the performance of this operative procedure.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2037-2038.

Question 11 of 150
A 60-year-old woman complains of peristomal pain three days after undergoing a radical cystectomy and ileal conduit for bladder cancer. A 16 Fr straight catheter is in the conduit; ureteral stents were not utilized. Her stoma was initially dusky, and is now black. The next step is:

A: remove conduit catheter.

B: loopogram.

C: bilateral percutaneous nephrostomies.

D: loop endoscopy.

E: observation.

D: "loop endoscopy." is correct.

Vascular thrombosis of the intestinal conduit is often related to excessive tension in the mesentery of the chosen bowel segment, a hematoma in the mesentery, or inadvertent ligation of the major blood supply to the conduit. This can lead to necrosis of the stoma or the entire bowel segment. The stoma may normally appear dusky at the termination of the procedure. However, a pink to red appearance of the stoma should develop over the ensuing hours or days. If the stoma worsens in color, the patient develops pain around the stoma, or an obvious urine leak occurs, stomal necrosis is likely. This problem should be corrected on a semi-emergent basis. Loop endoscopy should be performed to determine the extent of ischemia. The extent of ischemia will determine the operative approach. Pressure from a 16 Fr Foley catheter is very unlikely to cause significant ischemia.

Gitlin J, Taneja SS: Complications of conduit urinary diversion, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders, 2001, chap 38, p 441.

Question 12 of 150
Temsirolimus treatment in poor risk patients with metastatic RCC is most effective when given:

A: oral daily.

B: subcutaneously weekly.

C: I.V. weekly.

D: subcutaneously three times per week.

E: I.V. weekly in combination with subcutaneous interferon.

C: "I.V. weekly." is correct.

Temsirolimus acts as an inhibitor of the mammalian target of rapamycin (mTOR). The combination of temsirolimus with interferon alfa was in fact inferior to temsirolimus alone when treating patients with advanced metastatic RCC. The mode of delivery that has been studied and proven effective in this setting is 25 mg administered weekly. This regimen resulted in a survival advantage in poor risk patients with metastatic RCC.

Hudes G, Carducci M, Tomczak P, et al: Temsirolimus, interferon alfa or both for advanced renal cell carcinoma. NEJM 2007;356:2271-2282.

Question 13 of 150
A woman with urinary incontinence occurring only during orgasm is best managed by:

A: behavioral therapy.

B: a bladder neck sling.

C: alpha-agonist medication.

D: antimuscarinic medication.

E: bladder neck collagen injection.

D: "antimuscarinic medication." is correct.

Incontinence during sexual intercourse is not an infrequent problem and is often incorrectly assumed to be due to stress urinary incontinence. Most women respond to antimuscarinic medication, suggesting the etiology is detrusor overactivity. Behavioral therapy is not effective. Since the mechanism is unrelated to stress incontinence, alpha-agonist, sling, and collagen injection are not indicated.

Serati M, Salvatore S, Uccella S, et al: Urinary incontinence at orgasm: Relation to detrusor overactivity and treatment efficacy. EUR UROL 2008;54:911-915.

Zhan Z, Bohla A, Starer P: Urinary incontinence during orgasm. UROL 1988;31:279-282.

Question 14 of 150
A 60 kg, 40-year-old woman with recurrent calcium oxalate nephrolithiasis has normal serum calcium and phosphorus levels. Twenty-four hour urine parameters are: Calcium 350 mg, Creatinine 2200 mg, Oxalate 50 mg, Citrate 1000 mg, Uric Acid 800 mg. The next step is:

A: hydrochlorothiazide therapy.

B: allopurinol therapy.

C: pyridoxine therapy.

D: creatinine clearance.

E: repeat 24-hour urine collection.

E: "repeat 24-hour urine collection." is correct.

Urinary creatinine provides an assessment of the completeness of a urine collection. In women, it should be 14-21 mg/kg/day and, in men, it should be 20-27 mg/kg/day. This individual over-collected as her urinary creatinine excretion was greater than 30 mg/kg/day. Repeating a urine collection would be the most appropriate step.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1398.

Question 15 of 150
A 62-year-old man with metastatic prostate cancer is treated with leuprolide acetate 30 mg intramuscular every four months and bicalutamide 50 mg daily. Eight months after an initial complete response, his PSA rises to 14 ng/ml and several new bone lesions are seen on bone scan. The next step is:

A: serum testosterone level.

B: perform orchiectomy.

C: increase bicalutamide to 150 mg daily.

D: stop bicalutamide.

E: docetaxel and prednisone.

A: "serum testosterone level." is correct.

Guidelines for hormone refractory prostate cancer (HRPC) have been established. Patients with evidence of disease progression should have their serum testosterone checked to ensure a castrate level as an initial step. If the testosterone level is not castrate on an LH-RH analogue, then surgical castration should be performed. Once the testosterone is established to be < 50 ng/dl, then the patient's antiandrogen (bicalutamide in this scenario) should be stopped and the patient observed for response to antiandrogen withdrawal. However, the patient should be maintained on medical or surgical castration continuously to suppress the hormone sensitive population of cancer cells.

Chang SS, Benson MB, Campbell SC, et al: Society of Urologic Oncology (SUO) Position Statement: Redefining the management of hormone-refractory prostate cancer. CANCER 2005;103:11-21

Question 16 of 150
A 65-year-old man with insulin-dependent diabetes chooses a vacuum constriction device for treatment of erectile dysfunction. After attempted use he reports insufficient rigidity for penetration. The most likely explanation is:

A: inadequate cavernosal arterial flow.

B: fibrosis of the corpora spongiosum.

C: corporal muscle dysfunction.

D: diabetic neuropathy.

E: improper device use.

E: "improper device use." is correct.

The vacuum constriction device should create penile rigidity sufficient for vaginal penetration in almost all impotent men who are treated. Adequate rigidity should be obtained, as long as the patient does not have significant intracorporal scarring from severe Peyronie's disease or a prior infected penile implant. Vacuum constriction devices even work in patients who have had a penile prosthesis removed. Often patients who are not given adequate instruction initially will not apply sufficient vacuum to fully distend the penis or do not use a small enough compressive ring at the base to achieve adequate rigidity. In these cases, instruction and reassurance is usually all that is necessary.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 21, p 783.

Question 17 of 150
A one-month-old boy has a history of unilateral prenatal hydroureteronephrosis. An ultrasound of the right kidney is shown. The most likely explanation for the finding is:

A: VUR into the upper pole.

B: upper pole UPJ obstruction.

C: ectopic upper pole ureter.

D: renal cyst.

E: calyceal diverticulum.

C: "ectopic upper pole ureter." is correct.

The ultrasound demonstrates a duplicated system with upper pole hydronephrosis. The most likely explanation for this finding in a newborn is an ectopic upper pole ureter. The upper pole of a duplex system has a higher incidence of ectopia than the lower pole ureter because the upper pole ureter originates higher on the mesonephric duct and requires absorption of a longer segment of common excretory duct before it becomes incorporated in the bladder. The hydronephrosis results from distal ureteral obstruction as the ureter passes through the sphincteric mechanism of the bladder neck. UPJ obstruction of the upper pole segment is possible but much less common and would not have a dilated ureter. VUR into the upper pole is possible in association with ectopia, although VUR is usually not present with an ectopic upper pole ureter. A renal cyst or a calyceal diverticulum would be contained within surrounding normal renal tissue.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, p 3387

Question 18 of 150
A 42-year-old man has gross hematuria. Evaluation reveals a 9 cm left renal mass and diffuse metastases in lung and bone. Cystoscopy is normal. Cytoreductive nephrectomy prior to systemic tyrosine kinase inhibitor therapy will:

A: improve response to therapy.

B: reduce pro-angiogenic factors.

C: resolve hematuria.

D: improve drug delivery to metastatic sites.

E: increase survival.

C: "resolve hematuria." is correct.

Cytoreductive nephrectomy prior to systemic therapy in patients with metastatic RCC has been offered for a variety of reasons, including palliation of symptoms, potential for spontaneous regression of metastases, and potential improvement in response to systemic immunotherapy. Two randomized trials demonstrated that cytoreductive nephrectomy prior to systemic therapy did not improve response to interferon, but did improve survival. Cytoreductive nephrectomy prior to tyrosine kinase inhibitor has not been evaluated in a randomized trial, and, therefore, it is not known whether it improves response to therapy or survival in this setting. Improvement in drug delivery or reduction of pro-angiogenic factors have likewise not been studied. In this case, it can only be said that nephrectomy will resolve the hematuria.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1623-1625.

Question 19 of 150
The condition that leads to a decrease in circulating blood volume is:

A: reduced renal arterial pressure.

B: angiotensin II excess.

C: catecholamine excess.

D: hepatic venous congestion.

E: hyperaldosteronism.

C: "catecholamine excess." is correct.

Increased renin with increased aldosterone will lead to an increase in circulatory blood volume. In hepatic venous congestion, aldosterone metabolism is diminished. Adrenal cortical adenoma causes mineralocorticoid excess and increased blood volume. Of all the conditions cited, only catecholamine excess, such as one might see in a patient with pheochromocytoma, is known to be associated with a decreased blood volume. This is the reason that preoperative volume expansion is important in patients with pheochromocytoma.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1865-1866.

Question 20 of 150
A 53-year-old man with a PSA of 2.7 ng/ml undergoes 12-core TRUS prostate needle biopsy. Pathology reveals focal high-grade PIN and atypical adenomatous hyperplasia (adenosis). The next step is:

A: examine multiple deeper tissue sections of current biopsy.

B: immediate repeat 12-core TRUS biopsy.

C: immediate saturation biopsy.

D: repeat PSA in six months.

E: delayed TRUS biopsy in six months.

D: "repeat PSA in six months." is correct.

The management of high-grade PIN has changed in the past five years. With the standard biopsy now including 10 to 12 cores, it is no longer considered mandatory for patients to undergo immediate rebiopsy of their prostate. However, in the setting of accompanying atypical small acinar proliferation (ASAP), immediate rebiopsy and/or additional examination of the original biopsy with deeper sections is usually recommended. In this case, however, the patient has atypical adenomatous hyperplasia (adenosis), which is felt to be a benign process and, therefore, does not require immediate rebiopsy. The patient, therefore, should be treated as if he has isolated high-grade PIN and should have serial PSA monitoring. If the PSA is increased in six months, repeat biopsy should be considered. If the PSA remains unchanged, however, rebiopsy should not be undertaken in six months.

Zynger DL, Yang XJ: High grade prostatic intraepithelial neoplasia and other atypical lesions of the prostate. AUA UPDATE SERIES 2008, vol 27, lesson 35, p 341.

Question 21 of 150
The most likely side effect of thiazide diuretic therapy for renal hypercalciuria is:

A: hypotension.

B: hyperkalemia.

C: hypocitraturia.

D: skin rash.

E: hyperoxaluria.

C: "hypocitraturia." is correct.

Thiazides are considered selective medical therapy for patients with renal hypercalciuria. However, thiazide use can be associated with hypokalemia, subsequent intracellular acidosis and significant hypocitraturia. Thiazide-induced hypocitraturia is the most common complication associated with thiazide therapy of hypercalciuria. Thiazides may also cause hyperuricosuria which can also exacerbate calcium stone formation.

Ruml LA, Pearle MS, Pak CYC: Medical therapy, calcium oxalate urolithiasis. UROL CLIN N AM 1997;24:117-133.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1423.

Question 22 of 150
The validity of a creatinine clearance test can best be determined by simultaneously measuring or calculating the:

A: total creatinine excreted.

B: total sodium excreted.

C: total urea excreted.

D: total urine volume excreted.

E: average urine osmolality.

A: "total creatinine excreted." was the correct answer.

The total amount of creatinine excreted each 24 hours is dependent upon muscle mass and is generally constant. An incomplete collection is suggested by an incorrect amount of total creatinine in a 24-hour specimen; the normal production of creatinine is 1.0 mg/kg/hr.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1132-1134.

Question 23 of 150
A 67-year-old man has persistent urinary drainage from a flank drain ten days following laparoscopic partial nephrectomy for a 3 cm upper pole mass. A retrograde ureteral stent was placed at the time of surgery. A KUB and renal image during cystography are shown. The next step is:

A: observation.

B: percutaneous nephrostomy.

C: advance drain.

D: reposition stent.

E: open surgical repair.

D: "reposition stent." is correct.

Following partial nephrectomy, a urinary fistula can develop in up to 17% of patients. This patient has persistent urinary drainage from his partial nephrectomy site despite placement of a ureteral stent. The radiographic studies demonstrate an incomplete duplication of the ureter with the stent in the lower pole moiety. The upper pole system (the site of the partial nephrectomy) remains unstented with persistent drainage. Observation will likely not improve the problem, and the drain should be left alone. The best treatment would be to reposition the stent into the upper pole collecting system and placement of a urethral catheter. Once the drainage stops, the urethral catheter can be removed, followed by the removal of the drain at a later date. The ureteral stent should be removed last. Greater than 99% of urinary fistula following partial nephrectomy resolve either spontaneously or with endoscopic management.

Novick AC: Open surgery of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 50, p 1730.

Question 24 of 150
A 46-year-old man with a congenital solitary kidney has a partial nephrectomy for a 3 cm RCC. At his first follow-up visit he is doing well. Physical exam is normal and routine laboratory studies are normal except for a stable but slightly elevated creatinine of 1.7 mg/dl, and a urinalysis with 2+ proteinuria. The next step is:

A: cholesterol and lipid panel.

B: 24-hour urinary protein measurement.

C: CT scan of the abdomen.

D: MRI scan of the abdomen.

E: nuclear medicine renography.

B: "24-hour urinary protein measurement." is correct.

Evidence-based guidelines for the follow up of patients after partial nephrectomy for localized RCC have been published. As with radical nephrectomy, the data indicates that follow up should be tailored according to pathological stage and risk of recurrence. Patients with a solitary remnant kidney are at risk of renal functional deterioration as a result of hyperfiltration injury. Because proteinuria is the initial manifestation of hyperfiltration injury and can be seen even with stable serum creatinines, a urinalysis checking for significant proteinuria, or a 24-hour urine protein measurement should be obtained yearly in patients with a solitary remnant kidney. This is important because dietary (protein restriction) and pharmacologic (angiotensin-converting enzyme inhibitors) intervention may prevent or lessen the damaging effects of hyperfiltration.

Novick AC: Open surgery of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 50, pp 1730-1731.

Question 25 of 150
Pretransplant bilateral nephrectomy is necessary for:

A: glomerulonephritis.

B: polycystic kidney disease.

C: medullary sponge kidney.

D: diabetes.

E: recurrent pyelonephritis.

E: "recurrent pyelonephritis." is correct.

Of the conditions listed, the only solid indication for pretransplant nephrectomy is the patient with a well-documented history of pyelonephritis. Pretreatment bilateral nephrectomy is most important in those patients with active infection. The hazards of active infection and immunosuppression certainly justify the risk. There is no indication for nephrectomy in the patient with glomerulonephritis. Patients with polycystic disease do not require bilateral nephrectomy prior to transplantation unless the kidneys are infected, contain abscesses or are too large. Cases of diabetes and medullary cystic disease not associated with UTI need not have pretransplant nephrectomy.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1298.

Question 26 of 150
A 38-year-old azoospermic man with secondary infertility has an ejaculate volume of 0.3 ml. Post ejaculate urine contains no sperm. Serum testosterone and FSH are normal, both vasa are palpable, and testicular volume is normal. Transrectal ultrasonography reveals a normal prostate, ejaculatory ducts, and dilated seminal vesicles. The next step is:

A: ejaculatory duct cannulation.

B: testis biopsy.

C: vasography.

D: seminal vesicle aspiration.

E: renal ultrasound.

D: "seminal vesicle aspiration." is correct.

The differential diagnosis of low ejaculate volume azoospermia is ejaculatory duct obstruction, hypogonadism, vasal agenesis, ejaculatory failure, and testicular failure. Hypogonadism was excluded by a normal testosterone level and the patient has palpable vasa. Retrograde ejaculation is not present because no sperm are in the post-ejaculate urine. This patient has either testicular failure or an

obstruction of the ejaculatory ducts. Seminal vesicle aspiration under transrectal ultrasound guidance will reveal numerous sperm if obstruction is present and is the least invasive method to diagnose this treatable lesion. Ejaculatory duct cannulation is difficult and thus may not diagnose the problem.

Jarow J, Sharlip ID, Belker AM, et al: Report on evaluation of the azoospermic male: An AUA best practice policy and ASRM Practice Committee report. AZOOSPERMIC MALE BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2001, pp 3-6. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/azoospermicmale.pdf

Question 27 of 150
A 69-year-old man undergoes complete resection of a micropapillary TCC of the bladder with superficial invasion of the lamina propria (T1). Muscularis propria is present and uninvolved; upper tract imaging is normal. The next step is:

A: surveillance with cystoscopy and radiographic imaging.

B: induction and maintenance Mitomycin C.

C: induction and maintenance BCG.

D: radical cystectomy.

E: neoadjuvant chemotherapy and radical cystectomy.

D: "radical cystectomy." is correct.

Micropapillary bladder carcinoma is a rare variant of urothelial carcinoma. As opposed to the standard form of urothelial carcinoma, intravesical BCG therapy appears to be ineffective against micropapillary variant, and therefore restaging TURBT would not change the management. Recent results suggest that the optimal treatment strategy for nonmuscle invasive micropapillary urothelial carcinoma is radical cystectomy performed before progression.

Kamat AM, Gee JR, Dinney CP, et al: The case for early cystectomy in the treatment of nonmuscle invasive micropapillary bladder carcinoma. J UROL 2006;175:881-885.

Question 28 of 150
A 40-year-old woman complains of headaches, photophobia, and urinary incontinence. Physical examination reveals lax anal tone and sacral anesthesia. Urinalysis shows greater than 10 RBC/hpf. Urodynamics demonstrates detrusor overactivity. An MRI scan reveals several lesions consistent with hemangiomas within the spinal cord. The most likely diagnosis is:

A: lipomeningocele.

B: tuberous sclerosis.

C: VHL disease.

D: diabetes mellitus.

E: adult polycystic kidney disease.

C: "VHL disease." is correct.

Forty-four percent of carriers of VHL disease have central nervous system lesions. VHL disease is often associated with headaches and papillary edema due to hemangioblastomas of the cerebellum. In addition, renal tumors are associated with microscopic hematuria. Spinal hemangioblastomas can occur in 24% of patients and are suspected in this individual as a cause for her neurogenic bladder.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, p 3332.

Question 29 of 150
A 20-year-old man has recurrent gross hematuria and left flank pain related to exercise. Urinalysis reveals microhematuria, RBC casts and 2+ proteinuria. Renal ultrasound is normal. The study most likely to be diagnostic is:

A: CT urogram.

B: diuretic renography.

C: renal angiography.

D: ureteroscopy.

E: renal biopsy.

E: "renal biopsy." is correct.

Recurrent gross hematuria in young adults occurring after an upper respiratory infection or exercise is the classic presentation of IgA glomerulonephritis (Berger's disease). Back pain and renal colic due to clots may be associated with the hematuria can persist for days or weeks and may recur. Though the course is chronic, young patients generally have a good prognosis. Renal insufficiency develops in approximately 25% of patients, a poor prognosis is more likely in those with older age, heavy proteinuria, hypertension or abnormal renal function at presentation. The pathology evident on renal biopsy is proliferative and confined mostly to mesangial cells. These changes are usually limited to either some glomeruli or lobular segments of a glomerulus. Though deposits of IgA and IgG may be present on biopsy, these findings are not pathognomonic of the disease as mesangial deposits are found in other forms of glomerulonephritis. Renal imaging or endoscopic intervention is not indicated.

Goldfarb DA, Nally JV Jr, Schreiber MJ Jr: Etiology, pathogenesis, and management of renal failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 41, pp 1345-1352.

Question 30 of 150
A 58-year-old year old asymptomatic man has a PSA of 2.4 ng/ml and a normal DRE. He is currently taking finasteride 1 mg every day to prevent hair loss. The next step is:

A: repeat PSA in one year.

B: repeat PSA in six months.

C: obtain free/total PSA ratio.

D: stop finasteride and repeat PSA in four months.

E: 12-core transrectal prostate needle biopsy.

E: "12-core transrectal prostate needle biopsy." is correct.

Studies have shown that finasteride 1 mg PO qd has a similar effect on PSA levels as finasteride 5 mg PO qd. Therefore, the PSA must be adjusted by a factor of 2 to get the true value. In this case, the adjusted PSA is 4.8 ng/ml. Therefore, the PSA is elevated and the patient should undergo a prostate needle biopsy. Repeat PSA in 6 or 12 months is not appropriate and may result in a delay in diagnosis. Free/total PSA ratio likely will not add much additional information, as total PSA is above the threshold for biopsy. Stopping finasteride and repeating PSA again may result in delay of diagnosis.

D'Amico AV, Roehrborn CG: Effect of 1 mg/day finasteride on concentrations of serum prostate-specific antigen in men with androgenic alopecia: A randomized controlled trial. LANCET ONCOL 2007;8:21-25.

Question 31 of 150
A 43-year-old woman has a 3 cm vesicovaginal fistula on the posterior bladder wall 2 cm above the trigone three years following pelvic XRT for cervical cancer. CT urogram demonstrates normal upper urinary tracts without evidence of recurrent disease. The next step is:

A: bladder biopsy.

B: bilateral percutaneous nephrostomies.

C: immediate transvaginal repair with gracilis interposition.

D: immediate transabdominal repair with omental interposition.

E: delayed transabdominal repair with omental interposition.

A: "bladder biopsy." is correct.

Although less common with improved radiation techniques, radiation-induced fistulas are commonly associated with persistent or recurrent cervical cancer. Fistulas may occur during or shortly following XRT as a result of tumor necrosis in the wall of the vagina or bladder. Fistulas that develop one or more years following XRT are attributed to radiation induced endarteritis obliterans with subsequent necrosis of the vaginal and bladder wall. The most important aspect in the management of a patient with a fistula following XRT is to rule out recurrent cervical cancer. Locally recurrent cervical cancer following definitive XRT is associated with poor survival despite aggressive multimodal management. Fistula repair would not be indicated in the setting of recurrent disease.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2327-2328.

Question 32 of 150
A 26-year-old woman who is 12 weeks pregnant has a sudden onset of frequency, urgency, and dysuria. She is severely allergic to penicillin. The best antibiotic is:

A: cephalexin.

B: tetracycline.

C: trimethoprim/sulfamethoxazole.

D: ciprofloxacin.

E: nitrofurantoin.

E: "nitrofurantoin." is correct.

Penicillins have proven to be the safest antibiotics for use during pregnancy. However if the patient is allergic to penicillins, they (and the cephalosporins) should not be used. Nitrofurantoin is usually safe but there is a small risk of maternal neuropathy (with long term use) and hemolysis in the fetus with relative G6PD deficiency. Trimethoprim/sulfamethoxazole is best avoided because folic acid antagonists are known teratogens. Tetracycline is contraindicated because of the adverse effects on the mother (hepatotoxicity) and fetus (tooth discoloration and dysplasia). Ciprofloxacin would be contraindicated because of its adverse effects on developing cartilage.

Lumbiganon P, Villar J, Laopaiboon M, et al: World Health Organization Asymptomatic Bacteriuria Trial Group. One-day compared with seven day nitrofurantoin for asymptomatic bacteriuria in pregnancy: A randomized controlled trial. OBSTET GYNECOL 2009;113:339-345.

Question 33 of 150
A 61-year-old man had a radical prostatectomy for pT2N0 Gleason 6 disease with negative margins five years ago. His initial PSA was undetectable and remained so until three years after surgery when it was first noted to be 0.08 ng/ml. One year later, his PSA was 0.1 ng/ml and it is now 0.12 ng/ml. The next step is:

A: repeat PSA in three to six months.

B: biopsy of the prostatic bed.

C: bone scan.

D: salvage pelvic radiation.

E: LH-RH agonist therapy.

A: "repeat PSA in three to six months." is correct.

This patient has a detectable PSA after radical prostatectomy. This is a difficult and controversial topic. Studies have shown that many patients who experience biochemical recurrence after radical prostatectomy never experience clinical symptoms and die of non-prostate cancer related causes. There are certain predictors that allow patients with clinically meaningful recurrences to be differentiated from those who do not require immediate intervention. Specifically, PSA doubling time and Gleason score at the time of prostatectomy, in addition to margin state and pathologic stage, are important predictors of both biochemical and clinical recurrence. In this case, the patient has a low PSA with a long doubling time. In fact, many urologists would not consider this a clinical recurrence. They feel that a biochemical recurrence after radical prostatectomy should be defined as a PSA > 0.2 or 0.4 ng/ml. In addition, there are reports of benign tissue left at the apex causing small rises in PSA that often present like this case. Given the slow doubling time, low Gleason score and favorable pathologic stage, the PSA should continue to be followed, albeit more closely and intervention should be reserved until the PSA doubling time shortens or the total PSA rises to a level unacceptable to the provider and patient. Biopsy of the prostatic bed is not appropriate, as this cannot conclusively rule-out the presence of recurrence and is associated with some morbidity. Bone and/or PET scan add little to the work-up, as it is highly unlikely that there is radiologically measurable metastatic disease at this PSA level. Intervention with either pelvic radiation or hormones should be reserved, as discussed earlier.

Morris MJ, Scher JI: The clinical state of the rising PSA level after definitive local therapy: A practical

approach, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 103, pp 3070-3071.

Question 34 of 150
A nine-year-old boy has urinary frequency and diurnal urinary incontinence without a history of urinary infection. Renal ultrasound is normal. An ultrasound of the bladder is shown. The next step is:

A: observation.

B: behavioral modification.

C: VCUG.

D: oxybutynin.

E: cystoscopy.

C: "VCUG." is correct.

Persistent voiding dysfunction with urgency, frequency, and diurnal urinary incontinence in this age group warrants screening with ultrasound. This image shows a diffusely thickened bladder with the bladder wall measuring > 5 mm (the upper limits of normal). This is a warning sign for outlet obstruction due to either an anatomic abnormality, neurogenic or non-neurogenic cause. This finding cannot be ignored. Cystoscopy can provide evidence for anatomic obstruction but would not be the recommended next step. The child should undergo a VCUG to rule-out the presence of valves. Observation, behavioral modification, and oxybutynin could be considered first in patients with minimal to mild bladder wall thickening since some degree of bladder wall hypertrophy can result from dysfunctional elimination. However, the degree of bladder wall thickening in this patient is greater than one would expect from dysfunctional elimination alone.

Williams CR, Perez LM, Joseph DB: Accuracy of renal-bladder ultrasonography as a screening method to suggest posterior urethral valves. J UROL 2001;165:2245-2247.

Question 35 of 150
A 46-year-old woman with autosomal dominant polycystic kidney disease has mild flank pain, dysuria, urinary frequency, hematuria, and pyuria. Her temperature is 38.1°C. The serum creatinine is 1.8 mg/dl. An ultrasound shows a 4 cm cyst in the left kidney filled with echogenic shadows. Urine culture is negative. The next step is:

A: cyst aspiration.

B: open renal cystectomy.

C: ciprofloxacin.

D: ampicillin and gentamicin.

E: laparoscopic cyst marsupialization.

C: "ciprofloxacin." is correct.

The course of adult polycystic disease is often complicated by flank pain, hematuria, nephrolithiasis and urinary tract infections. Infected cysts are a major problem because they are difficult to treat and may progress to intrarenal and perinephric abscesses. Fifty to 75% of patients with polycystic disease, mainly females, are said to develop UTIs during the course of their illness. Renal cysts do not communicate with the collecting system; therefore urine cultures may be negative. If the patient is generally well, antimicrobial therapy is the best first step. However, it may be ineffective because of choice of antibiotic which have poor penetration in the diseased kidneys. Most antibiotics, including aminoglycosides, penicillins, cephalosporins and macrolides penetrate polycystic renal cysts poorly. Drugs that penetrate cysts reasonably well include chloramphenicol, trimethoprim-sulfamethoxazole, clindamycin and ciprofloxacin. In this particular case where the patient is not toxic, oral treatment with ciprofloxacin and close observation is warranted. If the patient does not respond and/or her fever persists while on ciprofloxacin, percutaneous aspiration or drainage of the cyst would be indicated.

Hiyama L, Tang A, Miller LG: Levofloxacin penetration into a renal cyst in a patient with autosomal dominant polycystic kidney disease. AM J KIDNEY DIS 2006;47:9-13.

Elzinga LW, Golper TA, Rashad AL, et al: Ciprofloxacin activity in cyst fluid from polycystic kidneys. ANTIMICROB AGENTS CHEMO 1988;32:844-847.

Question 36 of 150
A 60-year-old man has Gleason 7, pT3aN0M0 adenocarcinoma of the prostate with a positive surgical margin after radical prostatectomy. His PSA is 0.2 ng/ml 16 weeks after surgery. He has mild but persistent stress urinary incontinence. The next step is:

A: observation.

B: high-dose bicalutamide.

C: leuprolide acetate.

D: postoperative radiation.

E: radiation if PSA values reach >1 ng/ml.

D: "postoperative radiation." is correct.

The Southwest Oncology Group (SWOG) trial 8794 demonstrated that adjuvant radiation reduces the risk of biochemical treatment failure by 50% over radical prostatectomy alone. Four hundred thirty-one subjects with pathologically advanced prostate cancer (extraprostatic extension, positive surgical margins, or seminal vesicle invasion) were randomly assigned to postoperative radiotherapy or observation. Three hundred seventy-four eligible patients had a median follow-up of 10.2 years. For patients with a postsurgical PSA of 0.2 ng/mL, radiation was associated with reductions in the 10-year risk of biochemical treatment failure (72% to 42%), local failures (20% to 7%), and distant failures (12% to 4%). Moreover, radiation to the prostate bed reduced the risk of metastatic disease and biochemical failure at all postsurgical PSA levels. It is advisable to wait at least 3-4 months after surgery to allow complete wound healing and return of urinary continence. If salvage radiotherapy is planned, it should be initiated before the PSA level rises much above 0.5 ng/ml. Although some patients with PSA recurrence are better managed with hormone therapy for PSA relapse, the long-term side effects would make adjuvant radiation the best choice particularly at this early post-operative stage.

Swanson GP, Hussey MA, Tangen CM, et al: Predominant treatment failure in postprostatectomy patients is local: Analysis of patterns of treatment failure in SWOG 8794. J CLIN ONC 2007;25:2225-2229.

Catalona WJ, Han M: Definitive therapy for localized prostate cancer - An overview, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 95, pp 2942-2943.

Question 37 of 150
In hypogonadal men, the agent which improves the results of nocturnal penile tumescence testing but does not affect erection in response to erotic films is:

A: testosterone.

B: L-Dopa.

C: sildenafil.

D: yohimbine.

E: bromocriptine.

A: "testosterone." is correct.

Androgen replacement in hypogonadal men does increase sexual activity and interest. The relationship between androgen replacement and penile erection is not straightforward. When evaluated with nocturnal penile tumescence testing, hypogonadal men demonstrate decreased erectile activity and this abnormality is corrected with testosterone replacement. Laboratory tested erectile responses to erotic films, however, are usually normal in hypogonadal men. These observations are consistent with the conclusion that the major effect of testosterone therapy on sexual function is to enhance libido and not to directly improve penile erection in a sexual setting. None of the other drugs are known to exert these effects.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, pp 763-764.

Question 38 of 150
A 42-year-old man is undergoing laparotomy for intraabdominal injuries and bladder rupture. Bleeding is noted in the perivesical area. After repair of the bladder rupture, attempts at suture ligation do not stop the persistent bleeding. Multiple blood transfusions are given and his core temperature is 35.5°C. The next step is:

A: intraoperative arteriography.

B: ligation of the hypogastric arteries.

C: I.V. aminocaproic acid.

D: close the abdomen and place patient in anti-shock trousers (MAST).

E: pack the pelvis and close the abdomen.

E: "pack the pelvis and close the abdomen." is correct.

Most major bleeding from the pelvis following blunt trauma can be controlled by packing the pelvis and planned re-exploration and/or angiography with embolization in the radiographic suite. Ligation of hypogastric arteries or veins is seldom helpful in management because bleeding occurs from multiple pelvic veins. On-table arteriography is technically difficult, time consuming, and provides poor images and should therefore not be used. The use of a MAST suit in such cases has not been proven to be effective. Bleeding is due to trauma and unlikely to respond to medical therapy.

Coburn M: Damage control surgery for urologic trauma: An evolving management strategy. J UROL

2002:160:13. Mucha P: Retroperitoneal injury, in Cameron JL (ed): CURRENT SURGICAL THERAPY. St. Louis, Mosby Year Book, 1995, pp 837-843

Question 39 of 150
A 53-year-old man with a 2 cm distal penile cancer undergoes partial penectomy revealing low grade T1 squamous cell carcinoma with tumor seen 7 mm from the final surgical margin. The next step is:

A: surveillance.

B: 5-fluorouracil cream.

C: XRT to the penile stump.

D: Moh's surgery of the penile stump.

E: additional penile resection to achieve a 2 cm margin.

A: "surveillance." is correct.

An increasing amount of data has accumulated to suggest that a 2 cm margin may not be necessary in all patients undergoing penile cancer resection. Two specific studies have challenged this surgical issue. In a prospective histologic analysis of 64 penectomy specimens, Agrawal and associates concluded that tumor grade highly correlated with microscopic tumor spread. The maximum proximal histologic extent was 5 mm for grade 1 and grade 2 tumors and 10 mm for grade 3 tumors. After performing a retrospective pathologic review of 12 penectomy specimens, Hoffman and colleagues also found seven patients with disease of pathologic stage T1 or greater with microscopic margins measuring less than 10 mm. None of these patients had disease recurrence at a mean follow-up of 32.4 months. The most important factor in determining risk of residual disease in patients with less than a 2 cm margin is tumor grade. This patient is therefore at low risk of recurrence and should be monitored accordingly.

Pettaway CA, Lynch DF Jr, Davis JW: Tumors of the penis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 31, p 972.

Hoffman MA, Renshaw AA, Loughlin KR: Squamous cell carcinoma of the penis and microscopic pathologic margins: How much margin is needed for local cure? CANCER 1999;85:1565-1568. Agrawal A, Pai D, Ananthakrishnan N, et al: The histological extent of the local spread of carcinoma of the penis and its therapeutic implications. BJU INT 2000;85:299-301.

Question 40 of 150
A four-year-old girl undergoes a left cross trigonal ureteroneocystostomy with ureteral tapering for grade 5 VUR. The preoperative VCUG and a left renal ultrasound six weeks following surgery are shown. The next steps are to continue prophylactic antibiotics and:

A: repeat ultrasound in four weeks.

B: MAG-3 renal scan.

C: percutaneous nephrostomy.

D: ureteral stent placement.

E: revise ureteroneocystostomy.

A: "repeat ultrasound in four weeks." is correct.

There is considerable postoperative edema at the level of the bladder four to six weeks following a tapered ureteroneocystostomy. In addition, high grade VUR results in diminished compliance of the ureter and renal pelvis. Prior to surgery, it is common to see a normal upper tract on renal ultrasound or only minimal hydroureteronephrosis. After surgery the combination of the resistance from the ureteral tunnel and operative edema can unmask the poor compliance of the ureter and kidney resulting in the appearance of significant hydroureteronephrosis. This should not be interpreted as obstruction. When evaluating the immediate post operative ultrasound it is necessary to put it into perspective with the initial degree of ureteral and renal dilation noted on the VCUG and not directly compare it to the preoperative renal ultrasound. In general, there is no major concern for obstruction if the degree of hydronephrosis on the post operative ultrasound correlates with the degree of dilation of the collecting system seen on the preoperative VCUG. Increased dilation due to edema and a poorly compliant system will begin to improve after six weeks. If this dilation persists after several months, a MAG 3 renal scan should be performed to aid in determining if post operative obstruction exists. All of the other options would be too premature at this point in time.

Khoury A, Bagli DJ: Reflux and megaureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 117, pp 3460-3461.

Question 41 of 150
Cystine stones form primarily as a consequence of:

A: increased concentration of urinary cystine.

B: a deficiency of substances other than cystine that inhibit crystal growth.

C: an excess of substances that promote crystal growth.

D: increased binding of cystine by matrix (mucoproteins).

E: excessive urinary acidity.

A: "increased concentration of urinary cystine." is correct.

Cystine stone formation is the only type of metabolic stone disease which can be determined specifically based on the urinary concentration of a specific ionic constituent. In most patients, once the urinary concentration of cystine increases to more than 200 mg of cystine per liter of urine, cystine crystals will precipitate out of solution with subsequent formation of cystine calculi. If one can reduce the cystine concentration below 200 mg per liter, either with increased urinary volume or reductions in cystine excretion, cystine stone disease can be prevented. However, a high percentage of patients with cystine stone disease will also have concurrent metabolic abnormalities and appropriate metabolic evaluation with subsequent treatment should also be instituted.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1385.

Question 42 of 150
A 12-year-old boy with a history of CAH has painful bilateral testicular masses confirmed on ultrasound. The next step is:

A: antibiotics.

B: increase corticosteroids.

C: fine needle aspiration of testis.

D: bilateral partial orchiectomy.

E: abdominal pelvic CT scan.

B: "increase corticosteroids." is correct.

The association between testicular tumors/nodules and CAH has been recognized for many years and are defined as testicular adrenal rest tumors (TART). Tumors are considered to be aberrant adrenal tissue that has descended with the testes and has become hyperplastic due to ACTH stimulation. The recommended treatment of TART consists of increasing the glucocorticoid dose to suppress ACTH secretions. Biopsy and or removal is not indicated unless increasing medical therapy fails. Antibiotics and abdominal pelvic CT scan are not indicated.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3904.

Question 43 of 150
A 70-year-old man with metastatic colon cancer and indwelling ureteral stents develops profuse gross hematuria. Arteriography demonstrates a fistula between the right common iliac artery and ureter. He is hemodynamically stable. The next step is:

A: stent removal.

B: percutaneous nephrostomy.

C: embolize common iliac artery.

D: open surgical repair with ligation of the common iliac artery.

E: endovascular graft placement.

E: "endovascular graft placement." is correct.

The majority of arterial ureteral fistulas occur in patients who have had extensive pelvic surgery, XRT, and indwelling ureteral stents. Most fistulas involve the common iliac artery but they can also occur in the hypogastric artery. Patients can experience high volume bleeding resulting in hemodynamic instability. Emergency arteriography should be performed if this complication is suspected. While embolization of the common iliac artery will control hemorrhage, a femoral to femoral artery bypass is required to provide adequate circulation to the ipsilateral lower extremity. Placement of an endovascular stented graft or an autologous vein covered stent are less invasive options obviating the need for vascular reconstructive surgery in a patient with limited life expectancy and are the preferred treatment method. The ureteral stent should be removed and a percutaneous nephrostomy placed after this procedure to limit recurrent fistula formation.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2358-2359.

Sexton WJ, Routh WD, McCullough DL, Bare RL: Hypogastric arterial-ureteral fistula. J UROL 1998;159:196-197.

Kerns DB, Darcy MD, Baumann DS, Allen BT: Autologous vein-covered stent for the endovascular management of an iliac artery-ureteral fistula: Case report and review of the literature. J VASC SUR 1996;24:680.

Houshiar AM, Hulbert JC, Bjarnason H, Cragg AH: Percutaneous treatment of an intraoperative arterial injury as a result of endoureterotomy. J UROL 1997;157:2249.

Question 44 of 150
The optimal tissue for early coverage of the perineum following an avulsion skin injury is a(n):

A: island skin flap.

B: musculocutaneous flap.

C: full thickness skin graft.

D: split thickness skin graft.

E: dermal graft.

D: "split thickness skin graft." is correct.

A split thickness skin graft takes much more readily than a full thickness skin graft or a dermal graft because capillary ingrowth into the graft is more rapid. Skin flaps and musculocutaneous flaps have no role in the acute management of avulsion injuries.

Michielsen D, Van Hee R, Neetens C, et al: Burns to the genitalia and the perineum. J UROL 1998:159(2):418-419.

Morey AF, Metro MJ, Carney KJ, Miller KS, McAninch JW: Consensus on genitourinary trauma: External genitalia. BJU INTERN 2004;94(4):507-515.

Question 45 of 150
An obese 11-year-old girl with spina bifida is undergoing bladder reconstruction. The appendix is not suitable for construction of a catheterizable abdominal channel. The best channel option is:

A: tunneled reconfigured ileum (Monti).

B: tunneled tapered ileum.

C: intussuscepted ileum.

D: incontinent ileovesicostomy.

E: tubularized detrusor flap.

A: "tunneled reconfigured ileum (Monti)." is correct.

The flap valve or Mitrofanoff principle gives excellent continence with ease of catheterization in most cases. When the appendix is not available, reconfigured ileum (Monti) is preferred because it gives a uniform tube with a small mesentery in the center that facilitates tunneling into the bladder and creation of an abdominal stoma. Tapered ileum leaves a bulky mesentery along the length of the channel and the mucosal folds are oriented transversely potentially making catheterization difficult. An ileal conduit is not ideal long-term management in children because of long-term upper tract deterioration. An incontinent ileovesicostomy requires an appliance has been documented to be problematic in obese patients. The bladder is likely thickened and small; the chance of a detrusor flap reaching the abdominal wall without being complicated by stomal stenosis is small. Intussuscepted ileum historically has a high failure rate with regards to stomal incontinence.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3696.

Question 46 of 150
The most common acid-base disturbance that occurs in a patient with an ileal conduit urinary diversion is:

A: hyperkalemic, hyperchloremic, metabolic acidosis.

B: hyponatremic, hypochloremic, metabolic acidosis.

C: hypochloremic, hypokalemic, metabolic alkalosis.

D: hypokalemic, hyperchloremic, metabolic acidosis.

E: hyponatremic, hypochloremic, metabolic alkalosis.

D: "hypokalemic, hyperchloremic, metabolic acidosis." is correct.

In the setting of an ileal conduit urinary diversion, ammonium absorption occurs with chloride in exchange for hydrogen and bicarbonate ions, and may be accompanied by renal potassium wasting. This results in a hypokalemic hyperchloremic metabolic acidosis. Hyponatremic hypochloremic hyperkalemic metabolic acidosis occurs with the use of jejunum due to sodium chloride loss with increased reabsorption of potassium and hydrogen ions. Use of stomach may lead to hypochloremic hypokalemic metabolic alkalosis due to hydrogen and chloride loss with renal oversecretion of potassium to compensate for proton loss.

Dahl DM, McDougal WS: Use of Intestinal Segments in Urinary Diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2570.

Question 47 of 150
The physiologic change during the third trimester of pregnancy that offers protection against kidney stone formation is:

A: increased ureteral peristalsis.

B: increased ureteral dilation.

C: increased urinary citrate.

D: decreased urinary calcium.

E: decreased urinary uric acid.

C: "increased urinary citrate." is correct.

Although ureteral peristalsis does increase, and the ureters do dilate during pregnancy, neither of these physiologic changes are associated with decreased stone formation. During the third trimester of pregnancy, urinary citrate levels are known to increase dramatically. Urinary citrate is a potent inhibitor of calcium oxalate crystallization, and should help protect against stone formation. Neither hypocalciuria nor hypouricosuria are routinely associated with pregnancy.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi

LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1391.

Question 48 of 150
A five-year-old boy has an ectopic ureter associated with a nonfunctional, hydronephrotic, upper pole segment of a duplex system. He undergoes an upper pole partial nephrectomy. The key step in the surgical dissection is:

A: mobilization of the lower pole of the kidney.

B: mobilization of the adrenal gland.

C: reduction of the size of the renal pelvis.

D: complete removal of the distal ureter.

E: dissection of the ureter from the renal hilum.

E: "dissection of the ureter from the renal hilum." is correct.

The critical step in patients undergoing upper pole, partial nephrectomy, to remove a non functional segment, is dissecting the abnormal ureter from the renal hilum so as not to cause vascular injury to the normal lower pole. The adrenal gland should be left in situ and not disturbed. The distal ureter especially in a male is rarely an issue if not completely removed. The lower pole of the kidney can be mobilized for exposure but is not typically necessary. Reduction of the renal pelvis is not an issue.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, p 3394.

Question 49 of 150
A 65-year-old man cannot void following an abdominoperineal resection for rectal cancer. He is treated with CIC, and is continent between catheterizations. Three months later he still cannot void and is re-evaluated. He has a normal creatinine and PSA. Cystoscopy reveals occlusive lateral prostatic lobes and a median lobe which projects onto the trigone. A combined CMG-EMG demonstrates a slight decrease in compliance, no definite detrusor contraction is seen. His EMG never silences. Preferred management is:

A: continue CIC.

B: bethanechol.

C: tamsulosin.

D: TUIP.

E: TURP.

A: "continue CIC." was the correct answer.

Patients who have undergone an abdominoperineal resection are at risk for developing denervation of not only their bladder but also the urethral sphincter mechanisms. Denervation of the smooth muscle in the area of the bladder neck and membranous urethra places these patients at considerable risk for incontinence following transurethral resection of the prostate. Because of the possibility of urinary incontinence following TURP or TUIP, the preferred management of this patient is continued CIC.

Bethanechol is not clinically effective in the doses that can be administered orally. Tamsulosin will not be effective in the absence of effective detrusor contractions.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2032.

Question 50 of 150
A six-year-old boy has severe suprapubic pain with urgency, frequency, dysuria, and fever. Urinalysis and culture are negative after a course of oral antibiotics. WBC count is 12,000/mcl. Renal ultrasound and VCUG are normal. Pelvic CT images are shown. The next step is:

A: I.V. antibiotics and observation.

B: percutaneous drainage and culture.

C: cystoscopy.

D: percutaneous biopsy.

E: partial cystectomy.

B: "percutaneous drainage and culture." is correct.

The CT is consistent with an infected urachal cyst. Broad spectrum antibiotics without a culture is not prudent. This is not a tumor, therefore biopsy is unnecessary. Excision is definitive therapy but is most appropriate after drainage and treatment of an abscess. Endoscopy may reveal some inflammation at the dome of the bladder but will not be therapeutic or diagnostic.

Frimberger D, Kropp BP: Bladder anomalies in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 121, pp 3577-3578.

Question 51 of 150
An eight-year-old 30 kg boy with spina bifida has an appendicocecostomy for the antegrade continence enema (ACE) procedure. Postoperatively, he has persistent fecal incontinence and severe constipation with little to no fecal response within two hours of placing 3000 cc of water into the ACE stoma. The next step is:

A: add 1/4 cup of baby shampoo to the colonic irrigations.

B: add a bottle of magnesium citrate to the bowel irrigations.

C: change to polyethylene glycol colonic irrigations.

D: convert to a descending colon stoma or tube for the ACE.

E: diverting colostomy.

D: "convert to a descending colon stoma or tube for the ACE." is correct.

Two major problems are found to exist with cecal or colon stomas 1) stomal stenosis will develop in up to 30% of patients; this can be managed with either stomal revision or placement of a cecostomy tube through the stenotic channel. 2) washout failure, defined as failure to pass little or any of the enema from the rectum within one to two hours following instillation of irrigation fluid. Approximately 5-10% of patients with washout failure will need a diverting colostomy. The maximum amount of tap water that can be used for ACE irrigations before alterations in serum sodium will occur can be calculated by the formula of body weight (kg) x 0.035 L/kg for example in this 30 kg child. 30 kg x 0.035 liters/kg = 1.05 liters maximum volume. The physician may use water volumes higher than what is calculated but the risk of hyponatremia rises with higher volumes, the onset of hyponatremia and the risk of water intoxication will of course be dependent upon the type of fluid instilled and dwell time within the bowel. If water volumes greater than calculations are used the patients serum electrolytes should be checked at monthly intervals until they can be documented to be stable, after that time electrolytes can be checked with routine follow-up. Alternatives to significantly increasing the volume of calculated instilled fluid involve changing irrigant fluid to polyethylene glycol irrigations, long term use of this substance is however associated with the intermittent development of C. difficile colitis. Magnesium citrate or phosphate enemas may be instilled in the ACE prior to washout to decrease irrigant volume however these maneuvers have been associated with resultant hypermagnesemia, hyperphosphatemia and hypocalcemia. In patients with washout failure following high volume irrigations of a right colonic ACE altering the stomal site/colonic tube to the left colon has been documented to reduce the volume of irrigant; result in successful fecal continence and save the majority of these patients from the need for a diverting colostomy.

Malone PS: The antegrade continence enema procedure. BJU INTERN 2004;93:248-249.

Churchill BM, De Ugarte DA, Atkinson JB: Left-colon antegrade continence enema (LACE) procedure for fecal incontinence. J PED SUR 2003;38:1778-1780.

Dey R, Ferguson C, Kenny SE, et al: After the honeymoon - medium-term outcome of antegrade continence enema procedure. J PED SUR 2003;38:65-68.

Yerkes EB, Rink RC, King S, et al: Tap water and the Malone antegrade continence enema: A safe combination? J UROL 2001;166:1476-1478.

Question 52 of 150
The most life-threatening electrolyte abnormality that develops during the diuretic phase of acute tubular necrosis is:

A: hyponatremia.

B: hypomagnesemia.

C: hypocalcemia.

D: hypokalemia.

E: hyperkalemia.

D: "hypokalemia." is correct.

During the massive urinary sodium losses occurring during the diuresis phase of acute tubular necrosis, potassium is also lost resulting in life-threatening hypokalemia. During diuresis the Na+/K+ pump is overwhelmed and exchange fails to occur.

Goldfarb DA, Nally Jr, JV, Schreiber Jr, MJ: Etiology, Pathogenesis, and Management of Renal Failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1330.

Question 53 of 150
The stone composition most resistant to fragmentation with SWL therapy is:

A: calcium oxalate monohydrate.

B: calcium oxalate dihydrate.

C: hydroxyapatite.

D: uric acid.

E: struvite.

A: "calcium oxalate monohydrate." is correct.

The fragility of stones determines their ability to be fractured with therapies such as SWL. The fragility of a stone will affect the outcome of therapy. Calcium oxalate monohydrate, brushite and cystine stones have been shown to be the least fragile and are less likely to respond to therapy with SWL.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1440.

Question 54 of 150
A 27-year-old man evaluated for infertility of nine months duration has a normal sperm count and motility, but sperm morphology reveals only round headed sperm. Testis volume is normal bilaterally, serum FSH is within normal limits, and he has a moderate sized left unilateral varicocele. His wife is 25-years-old, and has a normal evaluation. The next step is:

A: varicocele repair.

B: intrauterine insemination.

C: re-evaluation in three months.

D: in vitro fertilization.

E: ICSI.

E: "ICSI." is correct.

Observation is a reasonable choice in young couples with infertility of less than one year's duration. However, the finding of round headed sperm is consistent with absence of the acrosome and individuals with this finding are sterile. Standard intrauterine inseminations and in vitro fertilization are unsuccessful because the sperm cannot fertilize an egg without a normal acrosome. Varicocele repair will not improve the morphology. The only method that will induce a pregnancy using the patient's sperm is in vitro fertilization using intracytoplasmic sperm injection (ICSI). Even regular ICSI has resulted in low pregnancy rates. Current approaches combine assisted oocyte activation with ICSI. The alternative is donor insemination.

Tejera A, Molla M, Muriel L, et al: Successful pregnancy and childbirth after intracytoplasmic sperm injection with calcium ionophore oocyte activation in a globozoospermic patient. FERTIL STERIL

2008;90:1202-1205.

Meacham RB, Chemes H, Carrell D, Goldstein M: Globozoospermia: Is there a role for varicocele repair? J ANDROL 2007;28:490.

Question 55 of 150
A 50-year-old man is scheduled for a living related renal transplant. He has a serum creatinine of 5.5 mg/dl and is not yet on dialysis. His noncontrast CT scan shows a 2 cm solid left renal mass. The next step is:

A: repeat CT scan with I.V. contrast.

B: radical nephrectomy and exclude patient from transplantation.

C: simultaneous radical nephrectomy and renal transplantation.

D: radical nephrectomy, transplant in two years if no recurrence.

E: partial nephrectomy, transplant in two years if no recurrence.

C: "simultaneous radical nephrectomy and renal transplantation." is correct.

Incidentally discovered small asymptomatic renal tumors do not mandate a waiting period prior to transplantation. Repeating the CT scan with contrast risks further nephrotoxic injury with preexisting borderline renal function, and will not change the management of the renal mass. Although partial nephrectomy may carry the advantage of preserving additional renal mass, this is not applicable to this patient. The appropriate management in this setting is simultaneous nephrectomy and transplantation.

Cohen HT, McGovern FJ: Renal cell carcinoma. NEJM 2005;353:2477-2490.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1298.

Question 56 of 150
A 12-year-old boy with blunt abdominal trauma has a CT scan that shows a left renal fracture with a small subcapsular hematoma. He is managed with observation. Six days after injury he has a temperature of 38.4°C and increased hematuria with clots. His hematocrit has decreased from 30 to 24 in the last day. The CT scan on day six is shown. The next step is:

A: observation.

B: retrograde ureterogram.

C: arteriogram.

D: percutaneous nephrostomy.

E: open surgical exploration.

C: "arteriogram." is correct.

This child likely has a delayed bleed from a renal laceration. The CT demonstrates devitalized areas of the kidney with a collection of blood and urine. This is best managed by embolization after confirmation by arteriogram. Open surgery will more likely result in nephrectomy or heminephrectomy. Percutaneous

nephrostomy or retrograde ureterogram will not treat the continued bleeding. A retrograde study would be indicated if one were suspecting a pelvic tear or a UPJ disruption because of medial extravasation.

McAninch W, Santucci RA: Renal and ureteral trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 39, p 1282.

Question 57 of 150
An eight-year-old boy with acute lymphocytic leukemia undergoes chemotherapy. His urine output during the last 24 hours is 50 ml. Serum creatinine is 2.1 mg/dl, BUN 40 mg/dl, and uric acid 8.5 mg/dl. Renal ultrasound demonstrates normal sized kidneys with no hydronephrosis and increased echogenicity. The next step is:

A: isotope renogram.

B: renal biopsy.

C: retrograde pyelography.

D: allopurinol.

E: hydration and urinary alkalinization.

E: "hydration and urinary alkalinization." is correct.

The patient has tumor lysis syndrome and early acute oliguric renal failure secondary to uric acid nephropathy. The normal ultrasound without hydronephrosis rules out obstruction as the cause of the renal failure. Initial management is hydration, urinary alkalinization followed by reduction of uric acid with allopurinol. If that fails, hemodialysis may be necessary. Isotope renogram is not indicated. Renal biopsy, to rule out interstitial tumor infiltration, is also not indicated since the circumstance strongly suggests tumor lysis issues. The patient has no ureteral obstruction and, thus, cystoscopy and retrograde pyelogram with stent placement would not be helpful.

Jones DP, Mahmoud H, Chesney RW: Tumor lysis syndrome: Pathogenesis and management. PED NEPHROL 1995;9:206-212.

Goldfarb DA, Nally JV Jr, Schreiber MJ Jr: Etiology, pathogenesis, and management of renal failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 41, p 1329.

Question 58 of 150
A 28-year-old woman underwent kidney transplantation two weeks ago. Her immunosuppression regimen consists of tacrolimus, prednisone, and mycophenolate mofetil. She exhibits tremors but no fevers. Physical exam reveals no significant tenderness over the transplant. Serum creatinine nadir was 1.1 mg/dl but is now 1.9 mg/dl. Urinalysis is negative, and ultrasonography shows no hydronephrosis or peritransplant collections. The next step is:

A: blood sugar level.

B: tacrolimus blood level.

C: urine culture.

D: CT scan of transplant kidney.

E: I.V. fluid bolus.

B: "tacrolimus blood level." is correct.

Considerations for apparent early graft dysfunction include infection, renal allograft rejection, urinary or vascular obstruction, cyclosporine or tacrolimus nephrotoxicity, hyperglycemia, and dehydration. A screening work-up consisting of physical exam followed by basic laboratory tests and ultrasound are appropriate. In this case, the prominent physical exam finding of tremor suggests tacrolimus toxicity that can be further evaluated by determining the serum level of the immunosuppressant tacrolimus (calcineurin inhibitor). Mycophenolate mofetil is an antibiotic with immunosuppressive qualities. It is clinically indicated for cardiac and renal transplantation and the treatment of psoriasis and rheumatoid arthritis. Side effects of mycophenolate mofetil include anemia, leukopenia, thrombocytosis, GI bleeding, sepsis, lymphoma, skin cancer, and pulmonary fibrosis. It is not associated with a decrease in renal function. However, its use may result in elevation of tacrolimus and cyclosporin blood levels. The latter may interfere with renal graft function.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1316.

Question 59 of 150
A 55-year-old man has lower extremity thrombophlebitis and is started on warfarin. Two weeks later, he experiences abdominal pain and has a blood pressure of 84/50 mmHg. His hemoglobin is 13.5 gm/dl and serum potassium 5.8 mEq/l. A CT scan demonstrates bilateral 4 cm adrenal masses. The next step is I.V. fluids and administration of:

A: dexamethasone.

B: fresh frozen plasma.

C: Kayexalate.

D: fluorohydrocortisone.

E: Vitamin K.

A: "dexamethasone." is correct.

This patient has adrenal insufficiency secondary to bilateral adrenal hemorrhage. This can occur in anticoagulated patients, typically during the first three weeks of therapy. The initial therapy should be administration of I.V. fluids and glucocorticoid therapy. Fresh frozen plasma is not acutely indicated with an adequate hemoglobin level. Kayexalate will help lower a high potassium but not the hypotension from adrenal steroid deficiency. Chronic but not acute adrenal insufficiency is treated with fluorohydrocortisone. Vitamin K will help restore clotting factors depleted by warfarin therapy but is not the initial therapy for this patient.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1843-1845.

Question 60 of 150
Human papilloma virus is best prevented in a 15-year-old man with use of:

A: quadrivalent recombinant vaccine.

B: condoms.

C: oral acyclovir.

D: post-coital acetic acid.

E: topical acyclovir.

B: "condoms." is correct.

Quadrivalent Human Papillomavirus vaccine immunizes against types 6, 11, 16 and 18. Types 16 and 18 are associated with 70% of cervical cancer cases. Types 6, 11, 16, and 18 are associated with 90% of cases of genital warts. The vaccine has only been tested in females and is indicated in females age 9-26 for the prevention of cervical cancer, precancerous lesions and genital warts caused by these subtypes. There has been no testing of vaccine efficacy in males.

Mahdavi A, Monk BJ: Recent advances in human papillomavirus vaccines. CURR ONCOL REP 2006;8:465-472.

Question 61 of 150
An 80-year-old man has urinary retention. He has bilateral pitting edema, an elevated jugular venous pulse, and a blood pressure of 200/120 mm Hg. His creatinine is 4.0 mg/dl. The serum K+ and Na+ are normal. An ultrasound shows a very distended bladder and bilateral pelvicaliectasis. Three liters of urine is obtained from his bladder when he is catheterized. Urine output over the next two hours is 700 ml. The next step is:

A: serial creatinine measurement.

B: replace output ml per ml with D5 1/2 NS.

C: monitor fluid intake and output every four hours.

D: monitor postural BP for two hours.

E: spot check urine for osmolality, sodium, and potassium.

E: "spot check urine for osmolality, sodium, and potassium." is correct.

All patients with an output greater than 200 ml/hr have postobstructive diuresis and should be monitored. High risk patients with chronic obstruction, edema, congestive heart failure, hypertension, weight gain and azotemia are most likely to exhibit a postobstructive diuresis after the release of obstruction. In the high risk patient a spot check urine for osmolality, sodium and potassium will allow for the determination of the type of postobstructive diuresis and will guide in further management. High risk patients should have vital signs, including postural blood pressure and output measured hourly. D5 1/2 NS is an appropriate replacement fluid in the patient with an elevated BUN and creatinine but generally replacement is given at half of the previous hours urine output.

Pais Jr VM; Strandhoy JW, Assimos DG: Pathophysiology of Urinary Tract Obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1200.

Question 62 of 150
Hypertension secondary to acute unilateral urinary obstruction is most likely:

A: found in patients with a solitary kidney.

B: associated with transient hyperreninemia.

C: persistent after relieving the obstruction.

D: associated with a demonstrable renovascular lesion.

E: due to sodium and water retention.

B: "associated with transient hyperreninemia." is correct.

Renin-mediated hypertension sometimes occurs in acute unilateral renal obstruction and may present a clinical picture suggestive of a renovascular etiology; however, angiographic studies do not show a vascular lesion. A transient hyperreninemia initiates the hypertension and the hypertension is probably sustained by complex volume-vasoconstricting abnormalities that are dependent on the duration of the obstruction and the presence of a contralateral normal kidney. The abnormalities are corrected by relieving the obstruction and the blood pressure in turn reverts to normal. This type of hypertension usually does not occur in a solitary hydronephrotic kidney or bilateral hydronephrosis because of compromised renal function with lowering of renin levels due to impairment of overall sodium and water excretion.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, pp 1196-1197.

Question 63 of 150
A 52-year-old man has SWL of a 22 mm left renal pelvic stone. A 3 cm steinstrasse is found on a one week post-treatment radiograph. He is asymptomatic, even though a renal ultrasound examination shows moderate hydronephrosis. He returns in one month with a fever of 39.5°C. CT urogram shows markedly delayed function of his left kidney. This problem should be managed with antibiotics and:

A: medical expulsive therapy.

B: percutaneous nephrostomy.

C: ureteral stent.

D: ureteroscopic extraction of the fragments.

E: SWL of the leading fragments.

B: "percutaneous nephrostomy." is correct.

This patient has steinstrasse and appears to be septic, thus, his upper tract should be drained. Placement of a percutaneous nephrostomy tube is an option that will accomplish this. The fragments will pass spontaneously with a nephrostomy tube in place in upwards of 70% of cases, and thereby avoid ureteroscopic extraction or SWL of the ureteral fragments. Medical expulsive therapy will probably not be effective in this case.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1508.

Question 64 of 150
A 24-year-old sexually active homosexual man has a solitary erythematous nodule on the penile shaft. He does not have a urethral discharge. Purulent material is expressed from the nodule and culture on Thayer-Martin medium reveals oxidase positive colonies. The most likely diagnosis is:

A: primary syphilis.

B: gonorrhea.

C: chancroid.

D: lymphogranuloma venereum.

E: Kaposi's sarcoma.

B: "gonorrhea." is correct.

This patient's presentation is lacking in the usual signs and symptoms of gonorrhea, but an oxidase positive culture on Thayer-Martin medium is diagnostic of Neisseria gonorrhea. Thayer-Martin media contain various antibiotics (vancomycin, colistin and nystatin) and specific growth-promoting agents with hemoglobin (sheep's blood) that inhibits or totally suppresses the growth of accompanying bacterial flora while allowing pathogenic Neisseria species to grow normally. Diagnosis of primary syphilis is by darkfield microscopy and direct fluorescence antibody (DFA) test of specimens obtained from the lesion. Alternatively, nontreponemal serologic testing with rapid plasma reagin (RPR) or Venereal Disease Research Laboratory (VDRL) can be used to diagnosis primary syphilis. Chancroid is caused by Haemophilus ducreyi and this organism is fastidious and difficult to culture. Diagnosis is usually made by gram stain showing gram negative streptobacilli. Lymphogranuloma venereum (LGV) is caused by Chlamydia trachomatis types L1, L2 and L3. The diagnosis of LGV is primarily clinical as cultures are positive only 30-50% of the time from the cutaneous lesions: and accessory glandular infection may be the only manifestations of active gonorrhea. Kaposi's sarcoma is caused by HIV.

Benzaken AS, Galban EG, Antunes W, et al: Diagnosis of gonococcal infection in high risk women using a rapid test. SEXUALLY TRANSM INF 2006;82:26-28.

Question 65 of 150
The risk of serious illness or death to a surgeon who suffers a needle stick during the course of surgery is greatest if the patient:

A: has asymptomatic untreated HIV infection.

B: has a history of clinical hepatitis.

C: has AIDS treated with AZT.

D: is hepatitis B surface antigen positive.

E: is hepatitis A positive.

D: "is hepatitis B surface antigen positive." is correct.

The risk of hepatitis B virus (HBV) developing into clinical infection after a needlestick exposure to hepatitis B surface antigen positive blood ranges from 7% to 30%. Between 5% and 10% of persons with acute HBV infection become chronic carriers; 15% to 25% of carriers will eventually die of liver

cancer or cirrhosis. The risk of HIV infection after a needlestick exposure to HIV-infected blood is, on the average, approximately 0.4%. Thus, the death rate may be slightly higher with hepatitis exposure, and the morbidity rate is far higher.

Fry DE: Hepatitis: Risks for the surgeon. AM SUR 2000;66:178-183.

Question 66 of 150
A 50-year-old man who is receiving exogenous testosterone for treatment of erectile dysfunction will have:

A: decreased semen volume.

B: decreased sperm count.

C: increased FSH.

D: increased LH.

E: increased prolactin.

B: "decreased sperm count." is correct.

Exogenous testosterone will suppress pituitary production of LH and FSH. Prolactin levels will be unaffected. Semen volume, which is dependent on circulating testosterone levels, should be unchanged or increased. However, intratesticular levels of testosterone will decrease, resulting in lower sperm production and decreased sperm concentration.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 773.

Question 67 of 150
A 48-year-old man has a two-week history of low back pain and difficulty voiding. Physical examination reveals an absent bulbocavernosus reflex and loss of perineal sensation. MRI scan of the spine confirms an L4-L5 disc protrusion. The most likely distribution of his neural injury is:

A: parasympathetic alone.

B: sympathetic alone.

C: pudendal alone.

D: parasympathetic and pudendal.

E: sympathetic and pudendal.

D: "parasympathetic and pudendal." is correct.

The clinical picture is consistent with cauda equina syndrome, which is associated with disc disease (severe central posterior disc protrusion) and other spinal canal pathologies that involve the L4-S2 region. Additional features of the presentation include loss of voluntary control of both anal and urethral sphincters and of sexual responsiveness. The most consistent urodynamic finding is that of a normally compliant areflexic bladder with either normal innervation or incomplete denervation of the perineal floor musculature. Disc protrusions of the lumbar spine interfere with the parasympathetic and somatic innervation of the lower urinary tract, striated sphincter and other pelvic floor musculature, and afferent

activity from the bladder and affected somatic segments to the spinal cord.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2031-2033.

Question 68 of 150
Non-gonococcal urethritis not responsive to a full course of tetracycline should be treated with:

A: spectinomycin.

B: ceftriaxone.

C: doxycycline.

D: penicillin.

E: azithromycin.

E: "azithromycin." is correct.

Nongonococcal urethritis caused by Chlamydia trachomatis or Ureaplasma urealyticum cannot be distinguished clinically, but either tetracycline or azithromycin is usually effective against both. Sexual partners should also be treated. If the signs and symptoms of urethritis do not improve with a tetracycline, infection with tetracycline-resistant U. urealyticum may be present; this usually responds to an azithromycin. Relapse may be due to reinfection by an untreated sexual partner, and the patient and all partners should be retreated. When C. trachomatis causes mucopurulent cervicitis, it usually responds to the same regimen of tetracycline or azithromycin used to treat urethritis.

Takahashi S, Matsukawa M, Kurimura Y, et al: Clinical efficacy of azithromycin for male nongonococcal urethritis. J INFECT CHEMOTHER 2008;14:409-412.

Question 69 of 150
A 45-year-old man with a history of hypertension and significant tobacco use is impotent one year following a crush injury to the pelvis. A penile arteriogram reveals unilateral focal occlusion of the internal pudendal artery. Treatment should be:

A: intracavernous vasoactive injections.

B: dorsal venous ligation.

C: percutaneous angioplasty.

D: arterial revascularization.

E: penile prosthesis.

A: "intracavernous vasoactive injections." is correct.

Percutaneous or surgical revascularization of the internal pudendal arteries is not indicated owing to the patient's age and associated atherosclerotic vascular disease secondary to smoking. There is no indication for venous ligation. Owing to the vascular disease, penile injections may not be successful but should be implemented prior to insertion of a penile prosthesis.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature

ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, pp 779-781.

Question 70 of 150
During inflatable penile prosthesis surgery, the device is inspected for proper inflation and deflation after corporotomy closure. At maximal cylinder inflation, the glans flops ventrally over the distal portion of the cylinders. The next step is:

A: complete procedure with cylinders deflated.

B: complete procedure with cylinders inflated.

C: crural plication.

D: fix the glans to the tunica dorsally at the distal ends of the corporal bodies.

E: reassess the corporal bodies for cylinder size.

E: "reassess the corporal bodies for cylinder size." is correct.

The description suggests an impending supersonic transport (SST) deformity which is a ventral chordee of the glans whereby the distal aspects of the cylinders inadequately extend distally under the glans creating a floppy appearance. The floppy appearance mimics the drooped nose of the Concorde, a supersonic transport. A likely basis for the problem is inadequate dilatation and sizing of the corporal spaces. If this is identified during prosthesis placement, the corporotomies should be reopened and the corporal bodies inspected to be sure proximal perforation has not occurred. Redilation and remeasurement of corporal bodies are then performed, and the same cylinders can usually be reinserted adding rear-tip extenders to achieve appropriate length. A distal corporal plication ("Ball procedure") is not generally required during initial prosthesis placement. The device should remain in the deflated position at the completion of surgery until the time of device activation and initiation of use to avoid the risks of an unexpanded cavity space for the reservoir (that is associated with autoinflation), penile pain and distal corporal perforation.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, pp 788-801.

Question 71 of 150
The enzyme deficiency that most commonly leads to genital ambiguity in a 46 XX individual with normal ovaries is:

A: 20,22-desmolase.

B: 17-hydroxylase.

C: 21-hydroxylase.

D: 3B-hydroxysteroid dehydrogenase.

E: 17B-hydroxysteroid dehydrogenase.

C: "21-hydroxylase." is correct.

A deficiency of 20,22-desmolase, 3B-hydroxysteroid dehydrogenase and 17-hydroxylase enzymes occur with congenital adrenal hyperplasia but rarely cause genital ambiguity in a 46 XX female. 17B-

hydroxysteroid dehydrogenase is primarily a testicular enzyme. A 21-hydroxylase deficiency will cause CAH in both sexes but in a 46 XX individual with ovaries it will lead to genital ambiguity. Only enzyme defects beyond the 17-hydroxyprogestone stage of steroid biosynthesis will produce excessive androgenic substances.

Diamond DA: Sexual differentiation: Normal and abnormal, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 128, pp 3816-3821.

Question 72 of 150
A 26-year-old sexually active man has a painful 1.0 cm solitary ulcer on the glans penis which is culture positive for H. ducreyi. The next step is:

A: doxycycline.

B: azithromycin.

C: benzathine penicillin G.

D: acyclovir.

E: ciprofloxacin.

B: "azithromycin." is correct.

The patient's findings are classic for chancroid which is due to H. ducreyi. This is the most common sexually transmitted disease worldwide. It affects men three times more than women. It is associated with inguinal adenopathy that is typically unilateral and tender with tendency to become suppurative and fistulize. Single-dose treatment with azithromycin 1 gm orally or ceftriaxone 250 mg intramuscularly is first line therapy. While ciprofloxacin can be a secondary regimen, resistance to ciprofloxacin has been reported in some regions. Patients should be reexamined in five to seven days. Sexual partners should be treated if sexual relations were held within two weeks before or during the eruption of the ulcer.

Frenkl T, Potts J: Sexually transmitted diseases, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 11, pp 374-375

Question 73 of 150
A 52-year-old woman has persistent urinary frequency, urgency, and urge incontinence after six months of behavioral modification and pelvic floor physiotherapy. Physical examination demonstrates rotational descent of the anterior vaginal wall and a spurt of urine per urethra with deep coughing. The next step is:

A: antimuscarinic medication.

B: use of a pessary.

C: peri-urethral collagen injection.

D: mid-urethral polypropylene sling.

E: autologous fascial bladder neck sling.

A: "antimuscarinic medication." is correct.

This patient has mixed urinary incontinence. Although a sling or periurethral injectable agent may resolve the stress incontinence demonstrated on physical examination, this is not her primary complaint. A pessary is not indicated since she has no prolapse symptoms and it is not likely to cure her mixed symptoms. Several studies have found that urge predominant mixed urinary incontinence symptoms often respond to antimuscarinics medication.

Khullar V, Hill S, Laval KU, et al: Treatment of urge-predominant mixed urinary incontinence with tolterodine extended release: A randomized, placebo-controlled trial. UROL 2004;64(2):269-274

Kreder KJ, Brubaker L, Mainprize T: Tolterodine is equally effective in patients with mixed incontinence and those with urge incontinence alone. BJU INTERN 2003;92:418-421.

Question 74 of 150
The most important factor responsible for the frequent recurrence of UTIs in an otherwise healthy young woman is:

A: adhesive fimbriae of uropathogens.

B: specific receptors on urothelial cells.

C: presence of pathogenic coliforms in stool.

D: feminine hygiene practices.

E: method of contraception.

B: "specific receptors on urothelial cells." is correct.

Properties of uropathogens, sexual activity, feminine hygiene practices and the use of an IUD and/or spermicide may increase the frequency of UTIs in predisposed women, however they are not the most important etiologic factors. Many women have uropathogenic bacteria present in their bowel, use various contraceptive and hygiene methods, and are sexually active without developing infections. E. coli must colonize the peri-urethral area before an uncomplicated infection can occur. Coliform organisms are recovered only rarely from the region of the vaginal vestibule and external urethra in otherwise healthy women who do not have recurrent UTIs. It is postulated by most researchers that host factors rather than specific pathogenicity of the micro-organisms are the prime determinants of colonization. E. coli tend to adhere more to vaginal and buccal epithelial cells obtained from women with recurrent infection than to controls. This explains why certain women are prone to frequent recurrent infections. It would also explain why women with asymptomatic bacteruria are more prone to recurrent infection with marriage and pregnancy and would account for UTIs associated with intercourse, various contraceptive methods, etc., in highly susceptible women.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 233-234.

Question 75 of 150
An eight-year-old boy is involved in a MVC. A CT scan confirms a right UPJ disruption. He has had a right ureteral reimplant at the age of four years. The next step is:

A: percutaneous nephrostomy.

B: primary ureteropyelostomy.

C: transureteroureterostomy.

D: ileal ureter.

E: nephrectomy.

B: "primary ureteropyelostomy." is correct.

Disruption of the ureteropelvic junction in a child secondary to trauma is a prime indicator for operative intervention. His kidney should be salvaged and a percutaneous nephrostomy tube may not be diverting. While the distal blood supply of the ureter has been disrupted due to his previous surgery, his ureter should still have an adequate blood supply from the middle ureteral vessels. A primary repair is the best treatment option. Transureteroureterostomy would potentially put the contralateral renal unit at risk unnecessarily and not likely to be technically feasible.

Casale AJ: Urinary tract trauma, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 59, pp 923-943.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, p 3936.

Question 76 of 150

A 67-year-old man had a radical cystectomy and orthotopic diversion ten days ago. He now has feculent material draining from his urinary stents and urethral catheter after an episode of severe post-operative colitis. Within 24 hours, his temperature is 39°C, and his blood pressure is 95/50 mmHg. A CT scan of the abdomen and pelvis reveals an intraperitoneal abscess. Rectal examination is normal. The next step is:

A: percutaneous drain placement.

B: bowel rest with hyperalimentation.

C: bilateral percutaneous nephrostomy tubes.

D: fistula repair with bowel diversion.

E: proximal bowel diversion.

E: "proximal bowel diversion." is correct.

Nonoperative management is a viable option in selected patients with vesicoenteric fistulas, however, patients chosen for such treatment should be minimally symptomatic with benign fistulas. For those requiring surgical exploration, both one and two stage procedures have been based on clinical circumstances. The decision regarding a one or two stage procedure is influenced by the location and etiology of the fistula, the patient's general condition, the timing of the exploration relative to the original procedure, the presence of pelvic abscess, the presence of colonic obstruction, and the severity of the inflammatory response. Patients without gross fecal contamination can be treated with a one-stage procedure, whereas those with unprepped bowel, gross fecal contamination, severe inflammatory response, or abscess require a two-stage procedure.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2351-2352.

Question 77 of 150
Calcium reabsorption in the distal renal tubule is mediated primarily by:

A: Vitamin D.

B: aldosterone.

C: hypocalcemia.

D: urinary sodium.

E: parathyroid hormone.

E: "parathyroid hormone." is correct.

Parathyroid hormone mediates renal reabsorption of calcium in the distal nephron. More proximally in the nephron, calcium is reabsorbed in concert with sodium. Vitamin D influences calcium homeostasis primarily by enhancing small bowel absorption. Significant hypocalcemia stimulates renal calcium preservation by inducing parathyroid hormone secretion. Aldosterone mediates distal renal preservation of sodium in exchange for available hydrogen and/or potassium, and has no direct effect on calcium reabsorption.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1372.

Question 78 of 150
A healthy newborn boy has bilateral Grade 4 VUR. This is most commonly associated with:

A: low outlet resistance.

B: uninhibited detrusor contractions, coordinated voiding.

C: poor bladder compliance.

D: high pressure voiding with high residual.

E: lack of detrusor contractility.

D: "high pressure voiding with high residual." is correct.

Reflux in newborn boys is commonly high grade and associated with uninhibited detrusor contractions during filling, high pressure voiding due to elevated outlet resistence, detrusor-sphincter dyssynergy, and high postvoid residuals. Uninhibited, detrusor contractions associated with coordinated voiding is normal in infants and not associated with high grade VUR. Compliance and contractility are generally within the range of normal for these boys. The best treatment for infant boys with high grade VUR is prophylactic antibiotics and observation. Most of these infants will decrease their outlet resistance and resolve their VUR with neurourologic maturation during the first year of life.

Yeung CK, Godley ML, Dhillon HK, et al: Urodynamic patterns in infants with normal lower urinary tracts or primary vesico-ureteric reflux. BRI J UROL 1998 81:461-467.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, p 3614.

Question 79 of 150
A 47-year-old woman with symptomatic stress urinary incontinence develops dyspareunia and postvoid dribbling. A urethral diverticulum is confirmed with a vaginal ultrasound. Videourodynamics demonstrate an open bladder neck at rest, stable filling, and a Valsalva LPP of 70 cm of H_2O. The best treatment is urethral diverticulectomy and:

A: urethral bulking agent if stress urinary incontinence persists.

B: Martius fat pad.

C: pubovaginal fascial bladder neck sling.

D: a synthetic mid-urethral sling.

E: retropubic Burch colposuspension.

C: "pubovaginal fascial bladder neck sling." is correct.

This patient will likely have worsening stress urinary incontinence postoperatively. A concomitant pubovaginal fascial sling would treat the stress incontinence and have no increased risk of infection or urethral erosion. Concomitant placement of a synthetic sling should be avoided because of the potential risk of infection and erosion into the urinary tract. A Martius fat pad will not treat the incontinence. Collagen is unlikely to provide long term relief of stress urinary incontinence. It is unnecessary to perform a retropubic exploration at the time of a vaginal incision for urethral diverticulectomy, in addition, the intrinsic sphincter deficiency as suggested by the open bladder neck is treated better with a sling than a Burch procedure.

Rovner ES: Bladder and urethral diverticula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 73, p 2386.

Question 80 of 150
A 52-year-old man with a history of lung cancer has a 5 cm adrenal mass with an attenuation of 45 Hounsfield units noted on follow-up chest CT scan. Metastatic evaluation is otherwise negative. Serum catecholamines and urinary free cortisol levels are normal. The next step is:

A: MRI scan.

B: PET scan.

C: MIBG scan.

D: percutaneous needle biopsy.

E: adrenalectomy.

D: "percutaneous needle biopsy." is correct.

The CT findings are consistent with a metastatic lesion and percutaneous biopsy is indicated to confirm this diagnosis. If an adrenal mass has an attenuation of less than 0 Hounsfield units (HU), it is considered an adenoma. If the attenuation value is between 0 and 20 HU, chemical shift MRI is recommended. If lipid is detected in the lesion with this test, the mass is most likely an adenoma. Percutaneous biopsy is indicated when the attenuation is greater than 20 HU or if the lesion is otherwise indeterminant. To proceed immediately to an adrenalectomy in this setting of a previous primary malignancy such as lung cancer is inappropriate until tissue diagnosis is obtained. Treatment options will depend upon pathology of the lesion.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, p 132.

Question 81 of 150
The earliest clinical manifestation of a tethered spinal cord in children is:

A: constipation.

B: upward Babinski reflex.

C: lower limb weakness, gait abnormality.

D: increased deep tendon reflexes of the lower limb.

E: urinary incontinence secondary to detrusor overactivity.

E: "urinary incontinence secondary to detrusor overactivity." is correct.

Currently one third of the symptomatic patients undergoing detethering of the spinal cord will present with urologic complaints, 50% will present with the late findings of lower limb weakness/gait disturbance and approximately 15% with back pain. Bowel dysfunction is a rare presenting complaint. Damage from a tethered cord is the result of inadequate oxygen metabolism in the spinal cord. The cord becomes tethered between the site of tethering and where the anterior and posterior nerve roots exit the canal. Repetitive flexion and extension and/or Valsalva activity of any type kinks the arterioles and venules, thereby reducing blood supply to the tethered cord. The clinical findings of tethered cord come from accumulative hypoxemic damage and may occur at any age. The diverse structure of the spinal cord plays a large role in the pathogenesis of this disorder; specifically interneuronal axon connections have the highest oxygen requirements and are the first to become damaged. Clinically, this means the pelvic nerves and the sacral reflex arc will be the first to manifest the hypoxic damage, lower limb weakness and back pain occurring at a later time. Once an MRI scan depicts a tethered or abnormally lying cord, surgical detethering will not correct the MRI picture. Long-term follow up has revealed that up to 20% of tethered cords may redevelop symptomatic findings of re-tethering. The inability of the MRI scan to rule out re-tethering places the urologist and urodynamic testing in a key position. Specifically serial urodynamic tests or electromyography of the muscles involved with the sacral reflex arc are monitored at set intervals usually three months post surgical release of the cord and then again at six to twelve month intervals. Alterations in the urodynamic tests will result in increase attentiveness by the neurosurgeon for the development of re-tethering of the spinal cord.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3643-3645.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2030.

Question 82 of 150
A 72-year-old man has frequency, urgency, and urge incontinence after transurethral microwave treatment. While on an alpha-blocker, his AUA Symptom Score is 20 with a high degree of bother. Pressure flow study shows detrusor overactivity with incontinence, a voiding pressure of 65 cm H_2O, and a flow of 3 ml/sec. PVR=175 cc. The best treatment is:

A: oxybutynin.

B: oxybutynin and 5-alpha-reductase inhibitor.

C: sacral neuromodulation.

D: CIC.

E: TURP.

E: "TURP." is correct.

Urodynamic testing is reasonable in patients who have failed prior operative treatment. In patients who have obstruction and detrusor overactivity relief of the obstruction will generally result in resolution of the detrusor overactivity. Although antimuscarinics may help the patient's symptoms they do not treat the underlying persistent obstruction - clearly present in this case. 5-alpha-reductase inhibitors reduce prostate volumes and modestly improve symptoms but may not treat the underlying obstruction. CIC or neuromodulation will not address the obstruction. TURP is most likely to resolve the obstruction and improve symptoms.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, pp 1995-2000.

Kirby R, Lepor H: Evaluation and nonsurgical management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 87, pp 2771-2772.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2816-2820.

Question 83 of 150
The advantage of a non-refluxing ureterointestinal anastomosis is that it decreases:

A: upper tract colonization.

B: ureterointestinal stricture.

C: pressure transmission to the upper urinary tract.

D: metabolic abnormalities.

E: stone formation.

C: "pressure transmission to the upper urinary tract." is correct.

Non-refluxing ureterointestinal anastomoses do not prevent upper tract colonization. Virtually all upper tract systems are found to be colonized when urine is aspirated above the non-refluxing anastomoses. Studies which have compared non-refluxing colon conduits to refluxing ileal conduits show similar rates of upper tract deterioration. While a properly functioning non-refluxing ureteral anastomosis does prevent pressure transmission to the upper urinary tract, this benefit is in part offset by a higher incidence of ureterointestinal stricture. This has caused some to question the benefit of creating non-refluxing anastomoses in any form of urinary diversion whether conduit or continent. There is no impact on metabolic issues or stone formation.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 82, pp 2630-2632.

Question 84 of 150
A 30-year-old man with diabetes insipidus has been NPO for 16 hours. He becomes confused, lethargic, and hyperreflexic. The initial fluids given should be:

A: lactated Ringers.

B: D5W.

C: D5W/.2NS.

D: D5W/.45NS.

E: 3% saline.

A: "lactated Ringers." is correct.

This patient has symptoms characteristic of hypovolemic hypernatremia. This has occurred due to water loss from his diabetes insipidus without the ability to replace water or electrolytes orally. It is essential to first restore plasma volume with a relatively isotonic solution like lactated Ringers. The hypernatremia should then be corrected slowly with increased free water being given. Correction should decrease serum levels by no more than 10 mEq per day to prevent intracranial swelling and fatal complications. Hypertonic saline is contraindicated.

Hensle TW, Kearney MC: Fluids, electrolytes and nutrition, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 5, pp 51-57.

Question 85 of 150
A 38-year-old woman with stress urinary incontinence and recurrent UTIs undergoes urethral diverticulectomy. One month following removal of the catheter, she has constant dribbling incontinence. Examination reveals a 5 mm urethrovaginal fistula in the proximal urethra. The next step is:

A: topical estrogen therapy and suprapubic cystostomy.

B: place urethral catheter and obtain VCUG in three to six weeks.

C: transurethral fulguration of the fistula tract and placement of a urethral catheter.

D: urethrovaginal fistula repair.

E: urethrovaginal fistula repair and midurethral polypropylene sling.

D: "urethrovaginal fistula repair." is correct.

Proximal urethrovaginal fistulae may present with constant dribbling incontinence. A large (5 mm) urethrovaginal fistula is unlikely to close with urinary drainage or fulguration. The safety of synthetic materials is not established in the setting of urinary fistula or prior urethral diverticulectomy. Surgical repair of the fistula should be undertaken two to three months post-operatively, and re-evaluation of the SUI done once the fistula is repaired. Long term indwelling urethral catheter is not recommended due to the development of chronic bacteruria and chronic inflammation.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2351.

Question 86 of 150
The vessel at greatest risk for injury during laparoscopic placement of an umbilical trocar is the:

A: right common iliac vein.

B: vena cava.

C: abdominal aorta.

D: right common iliac artery.

E: inferior mesenteric artery.

D: "right common iliac artery." is correct.

Major vascular injury is a rare but serious complication that occurs in 0.11-2% of cases. The right common iliac artery lies close to the mid-line at the inferior umbilicus. Therefore, with placement of an umbilical trocar, the right common iliac artery is the most commonly injured vessel, followed by the aorta. In contrast, the IVC is less frequently involved because of its lateral location in relation to the aorta. The common iliac veins are rarely involved given their posterior location in relation to the common iliac arteries.

Eichel L, McDougall EM, Clayman RV: Basics of laparoscopic urologic surgery, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 7, p 207.

Bhoyrul S, Vierra MA, Nezhat CR, et al: Trocar injuries in laparoscopic surgery. JACS 2001;192:677-683.

Question 87 of 150
A 71-year-old man with a history of aortoiliac reconstruction has left flank pain. A noncontrast CT scan reveals obstruction of the left ureter at the pelvic brim. The most likely cause of the obstruction is:

A: compression from an anteriorly placed graft.

B: pseudoaneurysm formation.

C: retroperitoneal fibrosis.

D: ligation of the ureter.

E: ischemia of the ureter.

C: "retroperitoneal fibrosis." is correct.

Ureteral obstruction is a recognized complication of reconstructive vascular procedures. The incidence of temporary, asymptomatic hydronephrosis is 12-30%, and mild or moderate permanent ureteral obstruction is seen in 2-14% of patients. Most patients develop ureteral obstruction within one year following the procedure; however, delays up to 14 years have been reported. Retroperitoneal fibrosis secondary to the surgical procedure is the most common cause of ureteral obstruction and is believed to be secondary to bleeding or excessive periureteral dissection. The other choices are all causes of obstruction, but not the most common.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1223.

Question 88 of 150
A 72-year-old woman with a history of Hirschsprung's disease and multiple sclerosis has overactive bladder symptoms unresponsive to antimuscarinic medication. Six months ago, she had botulinum toxin injections into her leg for intractable spasms. Her urinalysis is leukocyte and nitrite positive. Botulinum toxin injections into the bladder is contraindicated due to her:

A: age.

B: neurological diagnosis.

C: history of botulinum injection six months previously.

D: history of Hirschsprung's disease.

E: urinalysis.

E: "urinalysis." is correct.

Among the parameters mentioned, only the presence of a positive urinalysis would preclude treatment with botulinum toxin. Patients of all ages have been treated with botulinum toxin and certainly patients with neurological conditions such as multiple sclerosis have been effectively and safely treated. Though no concrete data exist to define at what point it is reasonable to inject detrusor botulinum toxin after injection at other sites, most studies have suggested that at least three months pass between injections. The presence of Hirschsprung's disease is not a known contraindication to botulinum toxin bladder injections. A contraindication to botulinum toxin injection is the presence of an active urinary tract infection.

Reitz A, Stohrer M, Kramer G, et al: European experience of 200 cases treated with botulinum-A toxin injections into the detrusor muscle for urinary incontinence due to neurogenic detrusor overactivity. EUR UROL 2004;45:510-515.

Question 89 of 150
Renal ultrasound reveals an echogenic mass with speed-propagation artifact. The most likely diagnosis is:

A: simple renal cyst.

B: acute focal pyelonephritis (lobar nephronia).

C: intrarenal abscess.

D: angiomyolipoma.

E: RCC.

D: "angiomyolipoma." is correct.

Ultrasonography is a very useful imaging modality for distinguishing kidney masses. Specifically, it is able to use the acoustic properties of the renal parenchyma to aid in diagnosis. The presence of an echogenic mass immediately eliminates the diagnosis of simple cyst, as these are usually echo-free. In addition, while lobar nephronia may appear like a mass on ultrasound, it is usually echo-poor or echo-free as well. RCCs, intrarenal abscesses and angiomyolipoma all may be echogenic. Angiomyolipomas are usually echogenic, while RCCs and intrarenal abscesses have variable echogenicity. The key here is the speed-propagation artifact, which is due to the presence of fat in the tumor. In this case, the speed of sound in the fat is significantly slower than that in the soft tissue, which causes the unique artifact that confirms the diagnosis of angiomyolipoma.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, pp 119-122.

Question 90 of 150
During surgical exploration for penetrating renal trauma, the first major branch of the left renal artery is transected. The renal segment most likely supplied by this branch is:

A: apical.

B: upper anterior.

C: middle anterior.

D: lower.

E: posterior.

E: "posterior." is correct.

The first branch of the left renal artery is a small ureteral branch, but the first major branch is the posterior or dorsal artery. This artery primarily supplies the posterior segment of the kidney alone, but occasionally may provide a small branch to the apical segment as well. The anterior or ventral artery generally supplies branches to all but the posterior segment.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 28.

Question 91 of 150
Vascular reconstruction is recommended in hypertensive patients with:

A: bilateral medial fibroplasia.

B: bilateral ostial atherosclerotic lesions and poorly controlled hypertension on two medications.

C: unilateral 85% renal artery stenosis and a serum creatinine of 1.5 mg/dl.

D: bilateral 70% renal artery stenosis and a serum creatinine of 4.5 mg/dl.

E: bilateral 80% renal artery stenosis and serum creatinine of 2.0 mg/dl.

E: "bilateral 80% renal artery stenosis and serum creatinine of 2.0 mg/dl." is correct.

Re-vascularization is typically recommended in renal artery stenosis when > 75% occlusions occur either bilaterally or in a solitary single kidney. With severe renal loss (serum creatinine > 4 mg/dl), the likelihood of renal recovery is substantially reduced and revascularization is not recommended. Atherosclerotic renal vascular hypertension should be treated medically, typically with at least three medications before resorting to revascularization. Medial fibroplasia typically is not progressive and revascularization for this process is rare.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1174-1175.

Question 92 of 150
A 35-year-old man with new onset hypertension has a serum K+ of 2.9 mEq/l, a serum aldosterone of 80 ng/dl (normal 2-9 ng/dl) and a low peripheral renin level. An abdominal CT scan shows no adrenal masses. Adrenal venous localization studies show aldosterone levels of 6000 ng/dl and 8 ng/dl from the left and right, respectively. The next step is:

A: MIBG scan.

B: MRI scan with T2 weighted images.

C: left adrenalectomy.

D: ACE inhibitor and K+ supplement.

E: spironolactone.

E: "spironolactone." is correct.

Hypokalemia, an elevated serum aldosterone level and a normal peripheral renin level suggest primary hyperaldosteronism. The CT shows no adrenal mass suggesting adrenal hyperplasia. An MRI with T2 weighted images is useful in cases of a pheochromocytoma but this is not suggested by the biochemical data. An MIBG scan lacks sensitivity. Venous localization studies are most useful in this case. Venous localization studies demonstrate convincingly the pathology is from the left adrenal, suggesting unilateral hyperplasia. Spironolactone would be the first treatment. If the hypertension and hyperkalemia are not corrected, a left adrenalectomy would be indicated.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal

disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1856.

Question 93 of 150
The inferior mesenteric artery is ligated during a RPLND for testis cancer. Blood supply to the sigmoid colon is now derived from which artery:

A: right colic.

B: superior hemorrhoidal.

C: middle hemorrhoidal.

D: sigmoid.

E: middle sacral.

C: "middle hemorrhoidal." is correct.

The main arterial supply of the sigmoid colon is from the sigmoid and superior hemorrhoidal branches of the inferior mesenteric artery (IMA). The major collateral vessels are the middle and inferior hemorrhoidal arteries which arise from the internal iliac artery. They anastomose freely with the superior hemorrhoidal branches. It is distributed to the rectum, anastomosing with the inferior vesical artery, superior rectal artery, and inferior rectal artery. The right colic artery arises from the superior mesenteric artery and does not have collaterals to the distal colon. The superior hemorrhoidal arteries and sigmoid arteries are continuations of the IMA and is filled retrograde when the IMA is ligated. The middle sacral artery arises from the back of the aorta and gives some blood supply to the rectum.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2535-2536.

Question 94 of 150
A 75-year-old man is scheduled to undergo cataract surgery. He is currently taking tamsulosin, doxazosin, and metoprolol. The medication(s) associated with intra-operative floppy iris syndrome is/are:

A: tamsulosin.

B: doxazosin.

C: metoprolol.

D: tamsulosin and doxazosin.

E: tamsulosin and metoprolol.

D: "tamsulosin and doxazosin." is correct.

While tamsulosin had been the most widely publicized alpha-1a blocker to be associated with intra-operative floppy iris syndrome (IFIS) during cataract surgery, other alpha-blockers have as well (including super-selective and less selective agents). Although not eliminating the risk of IFIS, discontinuing these medications one to two weeks prior to surgery lowers the incidence.

Srinivasan S, Radomski S, Chung J, et al: Intraoperative floppy-iris syndrome during cataract surgery in men using alpha-blockers for benign prostatic hypertrophy. J CATARACT & REFRACTIVE SUR 2007;33:1826-1827.

Blouin MC, Blouin J, Perreault S, et al: Intraoperative floppy-iris syndrome associated with alpha-1-adrenoreceptors: Comparison of tamsulosin and alfuzosin. J CATARACT & REFRACTIVE SUR 2007;33:1227-1234.

Dhingra N, Rajkumar KN, Kumar V: Intraoperative floppy iris syndrome with doxazosin. EYE 2007;21:678-679.

Question 95 of 150
A 35-year-old Cushingoid woman undergoes left adrenalectomy for a small adrenal adenoma. Postoperative cortisol levels remain high. Her serum ACTH is low and an MRI scan of the brain is normal. The best therapy is:

A: aminoglutethimide.

B: right adrenalectomy.

C: ketoconazole.

D: ortho-para DDD.

E: metyrapone.

E: "metyrapone." is correct.

Excess circulating glucocorticoids may be due to adrenal adenoma or carcinoma, or to ectopic secretion of ACTH or CRH. This patient has no evidence of Cushing's disease or ACTH dependent disease. She most likely has a contralateral adrenal source and glucocorticoid suppression with metyrapone is the most appropriate next step. Agents include aminoglutethimide, which blocks the conversion of cholesterol to pregnenolone; metyrapone, which blocks the conversion of 11-desoxycortisol to cortisone. Patients given aminoglutethimide are prone to develop adrenocortical insufficiency because aldosterone production is also impaired. Metyrapone does not normally result in salt wasting because of increased production of desoxycorticosterone, a potent mineralocorticoid. A right adrenalectomy in a patient with a solitary adrenal gland would commit the patient to lifelong steroid replacement.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1836.

Question 96 of 150
A four-year-old boy is undergoing salvage cystoprostatectomy for rhabdomyosarcoma after failing chemotherapy and XRT. The best urinary diversion is:

A: ileal loop.

B: Kock pouch.

C: ileocolonic pouch.

D: sigmoid conduit.

E: transverse colon conduit.

E: "transverse colon conduit." is correct.

In patients with prostatic rhabdomyosarcoma who have failed chemotherapy and XRT, the best form of diversion, with the lowest complication rate is a transverse colon conduit. Once the patient has completed additional chemotherapy and no recurrence of malignancy has occurred for a minimum of two years, conversion to a continent urinary diversion can be considered.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3883.

Question 97 of 150
A 27-year-old quadriplegic woman has urinary incontinence. Videourodynamics reveal a detrusor LPP of 65 cm H_2O at 100 ml without VUR. Abdominal LPP is 105 cm H_2O. The best management is:

A: indwelling urethral catheter.

B: intradetrusor botulinum toxin injection.

C: ileovesicostomy.

D: augmentation cystoplasty and pubovaginal fascial sling.

E: appendicovesicostomy and augmentation cystoplasty.

C: "ileovesicostomy." is correct.

This patient has dangerously elevated intravesical pressures and a continuously draining ileovesicostomy will permit low pressure bladder emptying. An indwelling catheter has the risk of UTI, stones, cancer and urethral erosion. The incompetent outlet of the ileovesicostomy acts as a "pop off" as the bladder fills and therefore the intravesical pressure will remain safe. Bladder neck fascial sling is not necessary as it is unlikely that this individual will have stress incontinence per urethra given her high abdominal LPP and her limited mobility. She is a quadriplegic and catheterization following augmentation cystoplasty through an abdominal stoma or her urethra increases her risks, dependence on a caretaker, and is not practical.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters, CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, p 2297.

Question 98 of 150

A 50-year-old woman undergoes radical nephrectomy. Pathology reveals collecting duct carcinoma with invasion of the perinephric fat and microscopic involvement of one hilar node. Her metastatic evaluation is otherwise negative. The next step is:

A: observation.

B: XRT to the flank.

C: cisplatin and 5-FU.

D: tyrosine kinase inhibitor.

E: M-VAC chemotherapy.

A: "observation." is correct.

Collecting duct carcinoma is an unusual and aggressive type of renal tumor. While this patient is at risk for disease recurrence and progression, she is at this time without evidence of disease and no further therapy is indicated. There are no data that demonstrate efficacy of any form of adjuvant therapy.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1622-1623.

Question 99 of 150
A 50-year-old man who underwent radical cystoprostatectomy and orthotopic bladder reconstruction five years ago develops congestive heart failure. The best treatment for his persistent hyperchloremic metabolic acidosis is:

A: furosemide.

B: citric acid and sodium citrate.

C: sodium bicarbonate.

D: chlorpromazine.

E: potassium citrate.

D: "chlorpromazine." was the correct answer.

The treatment of hyperchloremic metabolic acidosis requires administration of alkalinizing agents or blockers of chloride transport. In patients in whom excessive sodium loads are undesirable, nicotinic acid or chlorpromazine may be administered to control the acidosis. Nicotinic acid and chlorpromazine inhibit cyclic AMP and thereby impede chloride transport. Furosemide will not correct the metabolic acidosis. Bicitra, sodium bicarbonate, and Polycitra all contain significant amounts of sodium which could potentiate the congestive heart failure.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2572.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3681.

Question 100 of 150
A 47-year-old woman undergoes a mid-urethral sling for the treatment of stress urinary incontinence. Optimal postoperative prophylaxis against DVT should include early postoperative ambulation and:

A: nothing else.

B: graduated compression stockings.

C: intermittent pneumatic compression.

D: aspirin.

E: low molecular weight heparin.

A: "nothing else." is correct.

The prevention of DVT in patients undergoing anti-incontinence and pelvic reconstructive surgeries should be dictated by preoperative individual patient and procedure specific DVT risk factors. In an uncomplicated patient without risk factors for DVT undergoing an anti-incontinence procedure for the treatment of stress urinary incontinence, early postoperative ambulation is considered adequate prophylaxis against postoperative DVT.

Forrest JB, Clemens JQ, Finamore P, et al: Best practice policy statement for the prevention of deep vein thrombosis in patients undergoing urologic surgery. PREVENTION OF DVT AFTER UROLOGIC SURGERY BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2008. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/dvt.pdf

Question 101 of 150
The chemotherapeutic agent most likely to be associated with increased toxicity because of reabsorption from an ileal neobladder is:

A: methotrexate.

B: gemcitabine.

C: vincristine.

D: doxorubicin.

E: cisplatin.

A: "methotrexate." is correct.

Toxic metabolic effects secondary to drug reabsorption of methotrexate from intestinal mucosa used in urinary tract reconstruction can occur. Vigorous hydration, alkalinization of the urine, and catheter drainage can prevent this complication. The other agents given do not display a significantly increased toxicity because of intestinal reabsorption. Methotrexate is the smallest molecule of those listed, and therefore most likely to be absorbed.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR,

Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2573-2574.

Question 102 of 150
A 12-year-old boy complains of intermittent right scrotal pain two weeks after being kicked in the groin. Both physical examination of the scrotal contents and urinalysis during an episode of pain are normal. Doppler ultrasound of the testis demonstrates normal flow, and a 5 mm subtunical cystic lesion in the lower pole of the right testes without internal echoes or calcification. The next step is:

A: radical orchiectomy.

B: scrotal exploration and biopsy of the lower pole lesion.

C: repeat physical examination and urinalysis in three months.

D: repeat ultrasound in three months.

E: bilateral orchiopexy.

D: "repeat ultrasound in three months." is correct.

The questions for this peripubertal boy with intermittent testicular pain are whether he has intermittent torsion and whether the lesion in the testis requires excision. With a normal physical examination; i.e., no horizontal lie to the testis, it is difficult to diagnose intermittent torsion especially since the problem has been evident for only two weeks. The lesion in the right testis is clearly a cyst by ultrasound and treatment for this would be observation with follow-up ultrasound in three months. True simple cysts of the testis are usually non-palpable, usually subtunical near the mediastinum of the testis, and rarely change on follow-up ultrasound. Complex cysts or cysts with calcification tend to be more associated with malignancy and require more aggressive management.

Garrett JE, Cartwright PC, Snow BW, Coffin CM: Cystic testicular lesions in the pediatric population. J UROL 2000;163:928-936.

Question 103 of 150
A 62-year-old man with bothersome LUTS has an AUA Symptom Score of 26, despite an adequate trial of an alpha-blocker and finasteride. DRE reveals a 40 gm benign prostate. PSA six months ago was 2.3 ng/ml. Prior to KTP laser prostatectomy, the next step is:

A: urinalysis.

B: repeat PSA.

C: uroflowmetry

D: cystoscopy.

E: pressure flow urodynamics.

A: "urinalysis." is correct.

The only recommended test prior to surgery, beyond those already mentioned, is a urinalysis. A positive urinalysis may trigger other testing. PSA was normal within the last year and need not be repeated. Cystoscopy, uroflowmetry, and postvoid residual testing are all optional. Cystoscopy may be appropriate if the size of the prostate is in doubt, particularly if it may be too large for endoscopic management. Uroflowmetry, although not specific, may be a reasonable indicator of bladder outlet obstruction. Pressure flow testing is the best assessment for outlet obstruction but is costly, invasive, and not recommended routinely unless the diagnosis is in doubt - for example, younger men with small prostates and severe LUTS, or if there is concern for neurogenic detrusor dysfunction.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2830-2831.

Question 104 of 150
In women with invasive carcinoma of the proximal urethra, the primary lymphatic nodes for metastatic disease are the:

A: superficial inguinal.

B: deep inguinal.

C: external iliac.

D: hypogastric.

E: obturator.

C: "external iliac." is correct.

Urethral carcinoma is more common in women, and may involve either the anterior or posterior urethra. The location of the primary tumor will dictate the primary landing zone. The anterior (distal) urethra and labia drain to the superficial and then deep inguinal nodes, while the posterior (proximal) urethra drains primarily to the external iliac, and then secondarily to the hypogastric and obturator lymph nodes.

Sharp DS, Angermeier KW: Surgery of penile and urethral carcinoma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 32, p 1019.

Question 105 of 150
A four-year-old girl with bilateral grade 3 VUR has two breakthrough UTIs in six months. She has three to four episodes of urinary incontinence per day and two hard bowel movements per week. She is neurologically normal. A DMSA renal scan is normal. The next step is:

A: bilateral subureteric injection.

B: bilateral reimplantation.

C: oxybutynin and timed voiding.

D: treatment of constipation and bilateral subureteric injections.

E: treatment of constipation and timed voiding.

E: "treatment of constipation and timed voiding." is correct.

The likely cause of this child's breakthrough infections is dysfunctional elimination syndrome, which may be present in as many as 20% or more of children with VUR. The enuresis and constipation are indicative of abnormal function. While she may ultimately need reimplantation, it is prudent to attempt to control her voiding dysfunction before undertaking surgical repair. Correction of VUR will not treat the underlying pathology. Her voiding dysfunction includes both bladder and bowel components and both need to be addressed with a timed voiding regimen and effective treatment of constipation. Oxybutynin will exacerbate the constipation and should be used only in refractory cases unresponsive to timed voiding and bowel management.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3618-3620.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, pp 3261-3262.

Question 106 of 150
The most common complaint following 16-dot plication for Peyronie's disease is:

A: pain with erection.

B: decreased penile sensation.

C: discomfort in the area of the suture.

D: penile shortening.

E: narrowing of penile girth.

D: "penile shortening." is correct.

Sixteen-dot plication for correction of Peyronie's disease is a simple and non-extirpative method to straighten the penis. The most common postoperative complaint in a series of 132 patients was penile shortening (41%) followed by suture pain/discomfort (12%), pain with erection (11%), narrowing of the phallus (9%), decreased penile sensation (6%) and hematoma formation (4%).

Jordan GH: Peyronie's disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 25, p 829.

Dean R, Lue T: Penile plication using the 16-dot technique, in Levine L (ed): PEYRONIE'S DISEASE. Totowa, NJ, Humana Press, 2007, pp 149-159.

Question 107 of 150
Deletions or mutations on chromosome 3 are most common in which histologic subtype of RCC:

A: clear cell.

B: chromophobe.

C: collecting duct.

D: medullary cell.

E: papillary.

A: "clear cell." is correct.

Genetic alterations on chromosome 3 are common in the clear cell variant of RCC but are uncommonly found in the other histologic variants, suggesting distinct pathways to tumorigenesis. The VHL tumor suppressor gene located at chromosomal locus 3p25 is mutated in approximately 50% of clear cell type RCC. The mutations of this gene result in decreased expression of hypoxia inducible factor 1 (HIF1) and increased expression of vascular endothelial growth factor 1 (VEGF1), thereby resulting in increased angiogenesis.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1585-1586.

Question 108 of 150
A four-year-old boy has renal failure due to membrano-proliferative glomerulonephritis. He has undergone a bilateral orchiopexy and proximal hypospadias repair as an infant. He is at greatest risk for development of:

A: gonadoblastoma.

B: NSGCT.

C: Sertoli cell tumor.

D: Wilms' tumor.

E: RCC.

D: "Wilms' tumor." is correct.

A number of recognizable syndromes are associated with an increased incidence of Wilms' tumor. Three syndromes that are well known to be at high risk for Wilms' tumor development include Denys-Drash syndrome (male pseudohermaphroditism manifested by proximal hypospadias and cryptorchidism, membrano-proliferative glomerulonephritis, and nephroblastoma), Beckwith-Wiedemann syndrome (macroglossia, nephromegaly, hepatomegaly) and WAGR syndrome (Wilms' tumor, aniridia, gonadoblastoma, and mental retardation. In patients with Denys Drash syndrome, the kidneys need to be monitored carefully and removed as renal failure occurs.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3885-3886.

Question 109 of 150
The urodynamic finding most predictive of new onset hydronephrosis in a 32-year-old T10 spinal cord injured man managed with antimuscarinic medication and CIC is:

A: bladder compliance < 10 ml/cm H_2O.

B: involuntary bladder contraction amplitude of > 100 cm H_2O.

C: detrusor LPP < 25 cm H_2O.

D: maximum urethral closure pressure > 100 cm H_2O.

E: detrusor areflexia at bladder capacity.

A: "bladder compliance < 10 ml/cm H_2O." is correct.

Normal bladder compliance defined as the change in bladder volume divided by the change in detrusor pressure, should be > 12. Patients with decreased bladder compliance are at great risk for development of upper tract deterioration. The amplitude of phasic involuntary bladder contractions is of little prognostic value due to their transient nature. Detrusor LPP of > 40 cm H_2O is a risk factor for upper tract deterioration however it is not as significant as poor bladder compliance. Neither detrusor areflexia nor increased urethral closure pressures are independent risk factors for hydronephrosis unless associated with elevated storage pressures.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, p 1993.

Question 110 of 150
A 57-year-old woman has an incidentally discovered 3.0 cm right lower pole renal mass. On CT images, the mass is heterogeneous, appears to extend beyond the capsule of the kidney, and enhances after administration of I.V. contrast. The mass measures +70 to +80 Hounsfield units with a small region within the tumor that measures -80 Hounsfield units. The left kidney appears normal. The next step is:

A: repeat CT scan in one year.

B: selective angiographic embolization.

C: laparoscopic cryoablation.

D: lower pole partial nephrectomy.

E: radical nephrectomy.

A: "repeat CT scan in one year." is correct.

This patient has CT scan findings that are pathognomonic of angiomyolipoma. Negative Hounsfield units confirm the presence of fat in this lesion, even though this can only be observed in a small region. No treatment is indicated in an asymptomatic patient with a relatively small angiomyolipoma but follow up with periodic CT scans is appropriate. Extension into the perinephric fat and even lymph node involvement can be found in association with angiomyolipoma and is thought to represent a secondary site of origin rather than a metastatic lesion. The presence of fat on a CT image is diagnostic.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1579.

Question 111 of 150
A 38-year-old man has diarrhea and loses two liters of isotonic fluid. He drinks two liters of water for fluid replacement. These fluid shifts result in:

A: decreased renin secretion.

B: decreased aldosterone secretion.

C: two liters of water added to the extracellular fluid.

D: decreased ADH secretion.

E: water moving from intracellular fluid to extracellular fluid.

D: "decreased ADH secretion." is correct.

The entire two liters of isotonic fluid are lost from the extracellular fluid (ECF). Since the loss is isotonic, the osmolality of the ECF did not change and no water moved out of the cells. The two liters of ingested pure water are distributed throughout the entire body water compartment; one-third remains in the ECF, and two-thirds move into the cells. The addition of pure water lowers the osmolality. Even though the decreased ECF volume would stimulate ADH secretion, the reduced osmolality would inhibit it via the hypothalamic osmoreceptors. Osmoreceptor input usually predominates during such "conflicts" unless the ECF volume depletion is very large. Renin and aldosterone secretions would increase because of the decreased ECF volume.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1137.

Question 112 of 150
A patient complains of lack of erectile efficacy with 20 mg of tadalafil. He has used it six times and always takes it with dinner. The next step in treatment is:

A: continue 20 mg of tadalafil.

B: take on an empty stomach.

C: increase the dose of tadalafil.

D: change to vardenafil.

E: change to intracorporal alprostadil.

E: "change to intracorporal alprostadil." is correct.

The pharmacokinetic profile of the PDE5 inhibitors differs mainly in terms of the half life, with tadalafil having a significantly longer half life (17.5 hours) than vardenafil or sildenafil (4-6 hours). The other principle difference is in absorption with a concomitant fatty meal. Both vardenafil and sildenafil have decreased absorption with a high fat meal while the absorption of tadalafil is not affected by food consumption. Many studies show that at least four to six attempts may be needed to demonstrate that a

patient will respond to PDE5 inhibitors. This patient has had an adequate trial of tadalafil and taking it on an empty stomach would not improve its efficacy. He has already been given the maximum FDA approved dose of tadalafil and increasing his dose will only increase the incidence of side effects. No level one evidence exists that switching PDE5 inhibitors will improve efficacy. Initiating treatment with intracorporal alprostadil would be a reasonable next step to efficaciously treat his erectile dysfunction.

Carson C: Phosphodiesterase type 5 inhibitors: State of the therapeutic class. UROL CLIN N AM 2007;34:508-509.

Question 113 of 150
A 22-year-old man treated with bleomycin, etoposide, and cis-platinum for a Stage II mixed germ cell tumor of the testis has a residual abdominal mass. Preoperative pulmonary function testing discloses a mild reduction in forced vital capacity. The most important factor in minimizing the risk of post-operative pulmonary problems after RPLND is limitation of:

A: inspired oxygen concentration.

B: the extent of resection.

C: perioperative steroids.

D: I.V. fluids.

E: the length of the incision.

D: "I.V. fluids." is correct.

Current literature has challenged the classical teaching that oxygen exposure increases the likelihood of pulmonary toxicity in patients treated with bleomycin. In this study the factors associated with postoperative pulmonary problems were positive fluid balance, amount of blood transfused, surgical time, estimated blood loss, and forced vital capacity, while the fraction of inspired oxygen was not a predictor of adverse outcome. Avoiding overhydration was the most important factor in limiting pulmonary problems.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 924.

Question 114 of 150
The development of acute renal failure following the I.V. administration of iodinated contrast material is most frequently associated with:

A: the presence of diabetes mellitus.

B: pre-existing cardiovascular disease.

C: lack of hydration.

D: multiple drug allergies.

E: previous allergic reaction.

C: "lack of hydration." is correct.

Several articles have pointed out that contrast agents may occasionally be toxic, especially in the diabetic or multiple myeloma patient. However, the most important factor in avoiding the development of acute renal failure after intravenous administration of contrast agent is adequate hydration followed by the correct dosage of the contrast agent. Pre-existing cardiovascular disease alone is not a significant risk factor nor is a history of drug allergies or allergic reactions. The presence of diabetes mellitus alone is not a risk factor unless accompanied by dehydration.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, p 113.

Question 115 of 150
The concomitant condition that would place a woman with asymptomatic bacteruria at greatest risk for developing a symptomatic UTI is:

A: type I diabetes mellitus.

B: type II diabetes mellitus.

C: hypertension.

D: hypothyroidism.

E: hyperthyroidism.

B: "type II diabetes mellitus." is correct.

The prevalence of asymptomatic bacteruria is higher in women with diabetes mellitus. Women with type II diabetes mellitus and asymptomatic bacteruria are at higher risk for developing a symptomatic UTI. However, patients with type I diabetes mellitus and asymptomatic bacteruria are not at higher risk for this occurrence. There are no known risks of developing symptomatic UTIs in hypertension or thyroid disorders.

Geerlings SE, Stolk RP, Camps JL, et al: Consequences of asymptomatic bacteriuria in women with diabetes mellitus. ARCHIV INT MED 2001;161:1421-1427.

Question 116 of 150
A 61-year-man complains of new onset of nocturnal incontinence two years after cystectomy and orthotopic ileal neobladder. He has daytime continence. The nocturnal incontinence persists despite restricting fluids for several hours before retiring. The next step is:

A: Kegel exercises.

B: oral anticholinergics.

C: determine PVR.

D: augmentation of the neobladder.

E: artifical urinary sphincter.

C: "determine PVR." is correct.

A likely cause of late onset nocturnal incontinence following orthotopic ileal neobladder is mucous retention resulting in incomplete bladder emptying. Patients with this condition may still maintain good daytime continence by voluntary contraction of the external sphincter and frequent voiding, but at night pelvic floor relaxation, decreased urethral closing pressure, and hypertonic urine production with an obligate water loss overcome these compensatory behaviors. This problem is best managed initially by catheterization of the pouch to determine PVR irrigating the mucous, and containing optimal drainage of the pouch prior to retiring. If nocturnal incontinence persists, setting an alarm to wake during night can be beneficial.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 82, pp 2619-2621.

Question 117 of 150
Spontaneous bladder perforation after enterocystoplasty is most likely the result of:

A: transmural cystitis.

B: mucous plug.

C: catheter trauma.

D: ischemic necrosis.

E: bladder malignancy.

D: "ischemic necrosis." is correct.

Ischemic necrosis of the augmented bladder wall may result from inefficient bladder emptying and chronic overdistention. Patient noncompliance with intermittent catheterization and mucus plugs may contribute to chronic overdistention, but are not the primary cause for bladder rupture after augmentation cystoplasty. A lack of detrusor sensation, chronic inflammation and the presence of bladder calculi may also be contributing factors. Bladder malignancy following enterocystoplasty is a rare occurrence and not found to be associated with spontaneous bladder perforation.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3685.

Question 118 of 150
The most significant difference between ureteroscopy and SWL in the treatment of a 1 cm lower pole kidney stone is:

A: stone free rate.

B: need for stenting.

C: length of stay.

D: postoperative complication rate.

E: return to work.

E: "return to work." is correct.

One study identified the major difference between SWL and ureteroscopy for lower pole stones was return to work, specifically 3.3 days following SWL compared to 8.5 days following ureteroscopy. Although SWL arguably provides acceptable first line therapy for stones 1 cm or less based on the initial randomized trial, ureteroscopy has been touted as a promising alternative that can improve the stone free rate with little additional morbidity over SWL. However, in this small trial investigators were unable to validate the hypothesis that ureteroscopy was superior to SWL. The stone free rate after ureteroscopy and SWL for lower pole stones of less than or equal to 1 cm was remarkably low and not statistically different between the two modalities. While the results of the study support that either SWL or ureteroscopy may be used in this situation, practitioners and patients must be cognizant of the limitations of treatment modalities that rely on spontaneous fragment passage to achieve a stone-free state.

Pearle MS, Lingeman JE, Leveillee R, et al: Prospective, randomized trial comparing shock wave lithotripsy and ureteroscopy for lower pole caliceal calculi 1 cm or less. J UROL 2005;173:2005-2009.

Question 119 of 150
A 67-year-old man has adenocarcinoma of the bladder located on the lateral wall, 3 cm cephalad to the left ureteral orifice. Abdominal and pelvic CT scan and chest radiograph show no evidence of metastatic disease. The next step is:

A: colonoscopy.

B: pelvic MRI scan.

C: repeat TURBT.

D: partial cystectomy.

E: radical cystectomy.

A: "colonoscopy." is correct.

Most adenocarcinomas of the bladder represent metastases from other primary adenocarcinomas such as colon, breast, or lung cancers. Hence, a primary source other than the bladder must be considered, and this patient should undergo colonoscopy for further evaluation prior to administration of definitive therapy.

Messing EM: Urothelial tumors of the bladder, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 75, p 2422.

Question 120 of 150
Compensatory renal growth in a child with a multicystic dysplastic kidney is most likely completed by:

A: first trimester.

B: birth.

C: age two.

D: adolescence.

E: one year after the multicystic dysplastic kidney is removed.

C: "age two." is correct.

Although the kidney contralateral to a multicystic dysplastic kidney does exhibit compensatory hypertrophy at birth, this occurs rapidly after birth, and by age two years, the hypertrophied kidney exhibits a GFR significantly greater than one normal sized kidney. This is not correlated with the removal of the multicystic kidney. Studies have demonstrated that compensatory renal growth can begin prenatally. Because the placenta provides the excretory function for the fetus, an increased excretory burden on the kidney is not required to initiate compensatory growth. Rather, alterations in growth factors or inhibitors presumably modulate the prenatal changes. Compensatory increase in renal mass in the adult is largely due to cellular hypertrophy. Neonatal glomerular hypertrophy results also from increased glomerular basement membrane surface area and proliferation of mesangial matrix.

Chevalier RL, Roth JA: Renal function in the fetus, neonate and child, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 107, p 3159.

Question 121 of 150
In well-controlled diabetic patients, which class of drug should be stopped 48 hours prior to elective major surgery:

A: glargine.

B: insulin.

C: rosiglitazone.

D: chlorpropamide.

E: metformin.

D: "chlorpropamide." is correct.

To stabilize glycemic control in patients taking insulin, frequent glucose monitoring should be performed, with insulin dosages adjusted appropriately. On the day before surgery, long-acting insulin can be continued throughout the day if the patient's control is good, particularly if the patient is using glargine. Oral agents are generally discontinued before surgery. Long-acting sulfonylureas (e.g., chlorpropamide [Diabinese]) are stopped 48 to 72 hours before surgery, while short-acting sulfonylureas, other insulin secretagogues, and metformin [Glucophage] can be withheld the night before or the day of surgery. No recommendations exist for discontinuation of thiazolidinediones (e.g. rosiglitazone [Avandia], pioglitazone [Actos]) before surgery; their extremely long duration of action probably indicates no rationale for stopping them at all.

Marks JB: Perioperative management of diabetes. AM FAM PHYSICIAN 2003;67:93-100.

Question 122 of 150
A 49-year-old man with poor libido and erectile dysfunction has a testosterone level of 122 ng/dl (normal 200-800 ng/dl). He has mild bilateral testicular atrophy, and his prostate is approximately 15 g size, without induration or nodules. His serum PSA is 2.1 ng/ml. The next step is:

A: antibiotics and repeat PSA in six weeks.

B: free testosterone level.

C: testosterone supplementation.

D: TRUS-guided prostate biopsy.

E: % free PSA.

D: "TRUS-guided prostate biopsy." is correct.

The normal PSA for a man under 50 is < 2.5, and in light of the low testosterone, this patient should have a much lower PSA level. Hence, a PSA of 2.1 ng/ml in this setting is suspicious for cancer and a prostate biopsy should be performed. There is no role for a % free PSA estimation, as it will not alter management at this time. Alternatively, the PSA could be repeated after testosterone replacement. It may be risky to initiate exogenous testosterone without ruling out prostate cancer.

Lilja H, Piironen TP, Rittenhous HG, Micolajczyk SD, Slawin KM: Prostate specific antigen, in Vogelzang NG, Scardino PT, Shipley WU, Coffey DS (eds): GENITOURINARY ONCOLOGY, ed 2. Philadelphia, Lippincott Williams & Wilkins, 2000, chap 38A1, pp 638-650.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2919.

Question 123 of 150
The normal epithelium of the distal bulbar urethra in the adult male is:

A: transitional.

B: stratified squamous.

C: pseudostratified columnar.

D: columnar.

E: keratinized stratified squamous.

C: "pseudostratified columnar." is correct.

Pseudostratified columnar epithelium lines the urethra from the membranous area to the fossa navicularis where stratified squamous epithelium becomes predominant. Transitional cell epithelium lines the prostatic urethra to the membranous area. Neither columnar nor keratinized squamous epithelium is normally present in the male urethra.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 2, p 41.

Question 124 of 150
A 53-year-old woman has recurrent Proteus mirabilis urinary infections. CT scan shows a right renal staghorn calculus. Urine culture is negative. The next step is:

A: staged SWL with stent.

B: ureteroscopy with laser lithotripsy.

C: percutaneous nephrolithotomy.

D: acetohydroxamic acid.

E: percutaneous nephrostomy with hemiacidrin irrigation.

C: "percutaneous nephrolithotomy." is correct.

The American Urological Association Nephrolithiasis Guidelines Panel strongly recommends percutaneous nephrolithotomy as first line therapy for management of staghorn struvite renal calculi. The 2005 report of the Guidelines Panel states that all infected stone material should be eliminated to prevent recurrent infection lithiasis. After nephrolithotomy, hemiacidrin irrigation may be used to dissolve residual fragments. SWL for a struvite calculus requires multiple interventions and is unlikely to render the patient stone free. Ureteroscopy similarly is not likely to render the patient stone free. The urease inhibitor acetohydroxamic acid may be used to reduce the urinary saturation of struvite and decrease stone formation, however it should be noted that an increased incidence of DVT has been reported in patients receiving the medication. Ammonium chloride, methenamine hippurate and ascorbic acid have been reported to retard stone formation, but are not used as primary therapy.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, pp 1425-1426.

Question 125 of 150
Cystoscopy in a man often induces an increase in:

A: free PSA.

B: complexed PSA.

C: complexed/total PSA ratio.

D: PSA velocity.

E: prostate volume.

A: "free PSA." is correct.

Complexed PSA represents the fraction of total PSA that is circulating bound to other serum proteins, including antichymotrypsin and alpha-1 macroglobulin. Prostate manipulation including biopsy, cystoscopy, catheterization, and vigorous massage generally result in a transient increase in serum total PSA. Most of the rise in total PSA is contributed by the free (non-bound) component. In general, complexed PSA is the most stable component and relatively little rise occurs following prostate instrumentation. Complexed to total PSA ratio would decrease upon disproportionate free PSA increase. Due to the transient nature of PSA rise with prostate manipulation, PSA velocity is generally not affected.

Lynn NN, Collins GN, O'Reilly PH: Prostate manipulation has minimal effect on complexed prostate specific antigen levels. BJU INTERN 2000;86:65-67.

Gretzer MB, Partin AW: Prostate cancer tumor markers, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 93, pp 2899-2900.

Question 126 of 150
A five-year-old boy with hepatosplenomegaly develops progressive azotemia and a renal concentrating defect. Ultrasound of the kidneys demonstrates slight enlargement with multiple small (1-2 mm) cortical cysts. An uncle died of renal disease. The most likely diagnosis is:

A: familial juvenile nephrophthisis.

B: autosomal recessive polycystic kidney disease.

C: autosomal dominant polycystic kidney disease.

D: tuberous sclerosis.

E: renal-retinal dysplasia.

B: "autosomal recessive polycystic kidney disease." is correct.

The presence of autosomal recessive polycystic kidney disease varies depending on age. In older children, hepatosplenomegaly due to portal hypertension may be prominent and associated with renal interstitial fibrosis and cortical cystic disease. Autosomal dominant polycystic disease does not usually cause renal insufficiency at such an early age; the cysts are variable in size and occur throughout the kidney. Familial juvenile nephrophthisis and renal-retinal dysplasia are associated with renal cysts which are typically located in the medulla but the kidneys are usually shrunken and scarred. Renal cysts do occur in tuberous sclerosis but renal failure is usually attributed to multiple solid angiomyolipomas.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, p 3315.

Question 127 of 150
Routine office cystoscopy in a woman who has urinary frequency, urgency and bladder pain with negative urine cultures is done primarily to identify:

A: glomerulations.

B: urethral diverticulum.

C: cystitis cystica.

D: squamous metaplasia.

E: urothelial tumor.

E: "urothelial tumor." is correct.

The combination of LUTS and bladder pain with negative urine cultures suggest interstitial cystitis. Interstitial cystitis, in the strictest sense is a diagnosis of exclusion. The reason to perform a cystoscopy is to identify urothelial lesions such as carcinoma-in-situ, ulcerative lesions, bladder tumor, tubercular granulomas, or other treatable urothelial lesions. While glomerulations have been thought to be diagnostic for interstitial cystitis, they can only be detected with hydrodistention of the bladder under anesthesia, not routine cystoscopy. A urethral diverticulum, while potentially diagnosable with cystoscopy, is better diagnosed with pelvic MRI scan. Cystitis cystica and squamous metaplasia are common in middle aged women, and require no diagnostic testing or treatment.

Hanno PM: Painful bladder syndrome/Interstitial cystitis and related disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 10, pp 351-354.

Question 128 of 150
A 49-year-old women has chronic renal insufficiency (Cr 2.1 mg/dl). A CT scan reveals stable mild bilateral hydronephrosis, small non-obstructing renal stones, and a soft-tissue filling defect in the right ureter midway between the UPJ and iliac vessels. Cystoscopy and urine cytology are normal. On ureteroscopy a papillary lesion is completely excised, and histology reveals a low grade noninvasive TCC. The next step is:

A: retrograde ureterogram and ureteroscopy in three months.

B: ureteral stent placement and intravesical BCG.

C: segmental ureterectomy.

D: distal ureterectomy with Boari flap.

E: nephroureterectomy.

A: "retrograde ureterogram and ureteroscopy in three months." is correct.

This patient has significant renal insufficiency and is at risk for further deterioration. There is a growing body of literature regarding the endourologic management of upper-tract TCC in this situation. Indeed, this patient is an ideal candidate for an endourologic approach given the need for renal parenchymal preservation and low grade non-invasive tumor. From a tumor standpoint there is a very low risk of progression. With close follow-up, recurrences can be treated by repeat endourologic techniques. Intravesical or percutaneous BCG is not indicated at this time as is supported by only anecdotal evidence.

Sagalowsky AI, Jarrett TW: Management of urothelial tumors of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 49, pp 1672-1674.

Question 129 of 150
The boundaries of the femoral triangle are the inguinal ligament:

A: adductor longus, and vastus medialis.

B: pectineus, and iliopsoas.

C: pectineus, and sartorius.

D: adductor longus, and pectineus.

E: adductor longus, and sartorius.

E: "adductor longus, and sartorius." is correct.

The femoral triangle, also known as Scarpa's triangle, is bounded laterally by the medial margin of the sartorius. The medial boundary is the adductor longus and the inguinal ligament is superior. The floor of the triangle is composed of the pectineus muscle medially and the iliopsoas laterally. The location of the saphenofemoral junction is estimated to be at a point two fingerbreadths lateral and two fingerbreadths inferior to the pubic tubercle. These landmarks are important in a lymphadenectomy for penile cancer.

Sharp DS, Angermeier KW: Surgery of penile and urethral carcinoma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 32, p 1003.

Question 130 of 150
During an open gynecological procedure, the most common cause of a ureteral injury is:

A: uncontrolled bleeding from a uterine artery.

B: ureteral entrapment when ligating the ovarian pedicle.

C: ureteral damage during incision of the broad ligament.

D: mistaking the ureter for the round ligament.

E: ureteral damage while oversewing the vaginal cuff.

A: "uncontrolled bleeding from a uterine artery." is correct.

A ureteral injury occurs in 1% of gynecological procedures. This usually results from failure to identify the ureter when attempting to obtain hemostasis. Provided there is a clear surgical field, ureteral injury due to confusing it with another structure or during occlusion of the uterine or ovarian vessels is distinctly unusual.

Brandes S, Coburn M, Armenakas N, McAninch JW: Diagnosis and management of ureteric injury: An evidence based analysis. BJU INT 2004;94:277-289.

Question 131 of 150

The intravesical agent that decreases recurrence rates when given within six hours of initial transurethral resection of a nonmuscle invasive bladder tumor is:

A: BCG.

B: thiotepa.

C: mitomycin C.

D: valrubicin.

E: interferon.

C: "mitomycin C." is correct.

Immediate administration of intravesical agents following initial TURBT has been postulated to decrease tumor reimplantation and provide immediate therapeutic efficacy for microscopic residual disease. A number of randomized clinical trials have shown that TUR followed by immediate administration of a single dose of mitomycin C reduces recurrence rates when compared to TUR alone. These studies have also demonstrated that this effect is lost if administration is delayed by a day or more after TUR.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2453.

Question 132 of 150
An oliguric patient has a spot urine sodium of 8 mEq/l. The condition most consistent with this laboratory finding is:

A: prerenal azotemia.

B: acute tubular necrosis.

C: chronic pyelonephritis.

D: renal tubular acidosis.

E: acute urinary obstruction.

A: "prerenal azotemia." is correct.

Urine volume is the difference between GFR and amount of water resorbed. If a normal adult has a GFR of 180 liters/day then 179 liters must be reabsorbed to have a urine volume of one liter. Anuria is described as urine volume that is virtually nil, i.e., less than 50 ml/day. Oliguria is substantially reduced urine volume (less than 30 ml/hour). Urine sodium concentration is usually below 25 mEq/l in volume depletion and above 40 mEq/l with normovolemia or acute tubular necrosis. A urinary sodium of only 8 mEq/l is most suggestive of prerenal azotemia. RTA and chronic pyelonephritis would not generally lower urinary sodium concentrations.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1146-1150.

Question 133 of 150
A 33-year-old man has active genitourinary tuberculosis. His community has a 12% incidence of isoniazid resistant (INH) Mycobacterium. The initial treatment is INH and:

A: rifampin.

B: rifampin, pyrazinamide.

C: rifampin, ethambutol, pyrazinamide.

D: rifampin, streptomycin.

E: pyrazinamide, streptomycin.

C: "rifampin, ethambutol, pyrazinamide." is correct.

The best initial treatment of genitourinary tuberculosis is triple drug treatment for two months followed by two drugs for four months. The best combination is INH, rifampin, and pyrazinamide. If the INH resistance is above 4% in the patient's community, addition of ethambutol or streptomycin to the three drugs is advised. In 1991, resistance to one or more antituberculosis drugs was noted in 14.2% of patients with tuberculosis in the United States; 9.5% of patients had resistance to isoniazid or rifampin. Drug resistant tuberculosis has an increased prevalence in patients who are HIV-positive and among people who counsel HIV patients . Isolated isoniazid- resistant tuberculosis infections should be treated with rifampin, pyrazinamide, and ethambutol for six months. For patients who have tuberculosis strains that are resistant to rifampin, an alternate regimen of isoniazid and ethambutol for 18 months or isoniazid, pyrazinamide, and streptomycin for nine months are recommended.

Wise GJ, Marrella, VK: Genitourinary manifestations of tuberculosis. UROL CLIN N AM 2003;30(1):111-121.

Question 134 of 150
A 45-year-old man develops irritative symptoms and a fever of 39°C after beginning induction intravesical BCG therapy. The fever persists for three days despite administration of acetaminophen. Urinalysis reveals microscopic hematuria. After stopping BCG, the next step is:

A: one week of fluoroquinolone antibiotic.

B: one week of fluoroquinolone antibiotic followed by suppressive antibiotic therapy.

C: isoniazid for three months.

D: isoniazid and rifampin for six months.

E: isoniazid, rifampin, and ethambutol for six months.

C: "isoniazid for three months." is correct.

Intravesical BCG is generally well-tolerated, but patients should be monitored for systemic infection with BCG and treated appropriately. In the absence of bacteruria, patients with persistent (> 24 hours) high fevers (> 38.5°C) that do not respond to antipyretic therapy, should have BCG treatment discontinued and INH therapy started. This may be an early sign of a systemic BCG infection. Double and triple therapy is reserved for patients who present with pulmonary or hepatic involvement with BCG.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, pp 2456-2459.

Question 135 of 150
An eight-year-old boy with spina bifida is managed with CIC. He has chronic bacteriuria but normal renal function and no reflux. The most appropriate management is:

A: sterile intermittent catheterization.

B: antibiotic suppression.

C: cystoscopy.

D: observation.

E: intravesical antibiotics.

D: "observation." is correct.

Approximately half of the children on CIC have chronic bacteriuria. Despite suppressant antibiotic therapy, the majority of these patients continue to have chronic bacteriuria and suppressant therapy often leads to colonization with more resistant strains. Children on CIC who are clinically well without evidence of pyelonephritis or reflux require no treatment for chronic bacteriuria. Cystoscopy holds no value in this circumstance. Sterile intermittent catheterization has not been shown to decrease bacteriuria consistently when compared to clean CIC. Intravesical antibiotics are also uncertain in terms of benefit in this circumstance and are not even considered unless the child is suffering consequences of recurring symptomatic UTI and has failed other approaches.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3635-3637.

Question 136 of 150
A 24-year-old infertile man has a normal physical examination, serum testosterone of 340 ng/dl and isolated oligospermia with normal volume on two semen analyses. His wife's evaluation is normal. The next step is:

A: repeat semen analysis.

B: antisperm antibody testing.

C: scrotal ultrasound.

D: intrauterine insemination.

E: adoption.

D: "intrauterine insemination." is correct.

The patient has oligospermia. No correctable abnormalities are present. Further evaluation with ultrasonography for a subclinical varicocele is not helpful. Since two semen analyses show the same defects, a repeat semen analysis will be of no value. If the two analyses were discrepant, another specimen would be useful. No indication for antisperm antibody testing is present. Intrauterine insemination is most effective for cervical-factor infertility or isolated oligospermia.

Sigman M, Jarow JP: Male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 19, p 622, 651.

Question 137 of 150
A 66-year-old woman develops lung and lymph node metastasis two years following radical nephrectomy for a T3bN0M0 grade 3 clear cell RCC. Despite high-dose IL-2, she has disease progression at nodal sites six months later. Her performance status is excellent. The next step is:

A: palliative care.

B: sorafenib.

C: gemcitabine and 5-FU.

D: combination IL-2 and interferon alpha.

E: allogenic stem cell transplant.

B: "sorafenib." is correct.

The discovery of the VHL gene and subsequent elucidation of the dysregulated tumor pathways in RCC has led to targeted therapy for this disease. Recently the FDA has approved sorafenib (Nexavar) and sunitinib (Sutent) for the second-line treatment of advanced RCC after failed cytokine therapy. The fast-track approval of sorafenib was in large part due to the preliminary results of a large randomized trial conducted in over 100 centers in 19 countries. In a planned preliminary analysis, sorafenib doubled the progression-free survival compared to placebo and was associated with a greater than 50% reduction in the risk of progression. The trial was designed to determine whether treatment provides an overall survival benefit and analysis of this endpoint is premature. Although major tumor responses including complete responses are rare with this drug, the majority of patients exhibit tumor regression. These drugs are synthetic small molecules that inhibit a number of kinases important in tumor cell proliferation and tumor angiogenesis. Supportive care and hospice referral would be premature in this patient. Although gemcitabine based-chemotherapy regimens show activity and are being studied in kidney cancer, their role is in patients with rapidly progressing disease and unusual histologies including sarcomatoid, collecting duct, and renal medullary carcinoma. Other cytokine therapy following failure of high-dose IL-2 is rarely beneficial. Allogeneic stem cell transplant to produce a graft vs. tumor response is highly experimental and conducted in only a few centers in preliminary clinical trials.

Escudier B, Eisen T, Stadler WM, et al: Sorafenib for treatment of renal cell carcinoma: Final efficacy and safety results of the phase III treatment approaches in renal cancer global evaluation trial. J CLIN ONCOL 2009;27:3312-3318.

Question 138 of 150
An increased risk of genitourinary abnormality in the neonate is associated with:

A: newborn serum creatinine of 1.2 mg/dl.

B: maternal insulin-dependent diabetes.

C: maternal hypertension.

D: no urine from infant in first 20 hours.

E: maternal history of multicystic kidney.

B: "maternal insulin-dependent diabetes." is correct.

The neonatal serum creatinine of 1.2 mg/dl reflects maternal creatinine and is not a matter of concern. Maternal diabetes mellitus (insulin-dependent) poses an increased risk for sacral agenesis and bladder dysfunction in the infant. Maternal hypertension is associated with some risk of renal vein thrombosis. Some infants do not pass urine in the first 24 hours. At 20 hours, no studies are indicated in the absence of other problems. Multicystic kidney is congenital, but not hereditary.

Bauer SB, Koff SA, Jayanthi VR: Voiding dysfunction in children: Neurogenic and non-neurogenic, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 64, pp 2231-2283.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, p 3644.

Question 139 of 150
The factor that most likely predicts stent failure in patients with ureteral obstruction due to extrinsic compression is:

A: pain.

B: bilateral obstruction.

C: malignant obstruction.

D: distal ureteral obstruction.

E: the presence of a vascular graft.

C: "malignant obstruction." is correct.

Extrinsic ureteral obstruction is associated with stent failure in nearly half of patients within a year. A recent study of 101 patients treated with indwelling stents revealed extrinsic obstruction due to cancer; renal insufficiency (serum creatinine > 1.3 mg/dl); and obstruction following XRT or chemotherapy were predictors of stent failure. Patients with metastatic disease requiring systemic therapy may be best served with a percutaneous nephrostomy rather than a ureteral stent. Other alternatives, such as an extra-anatomic nephrovesical stent, can be considered as well.

Chung SY, Stein RJ, Landsittel D, et al: A 15-year experience with the management of extrinsic ureteral obstruction with indwelling ureteral stents. J UROL 2004;172:592-595.

Question 140 of 150
A 62-year-old man with minimal LUTS prior to treatment develops urinary retention three weeks after undergoing ^{125}I brachytherapy for prostate cancer despite tamsulosin 0.8 mg daily. Over the next nine months, he fails repeated voiding trials, refuses to perform CIC and has an indwelling urethral catheter. His prostate volume is 25 gm. The next step is:

A: finasteride.

B: leuprolide acetate.

C: suprapubic catheter.

D: TUMT.

E: TURP.

E: "TURP." is correct.

LUTS are common following brachytherapy and often seem to coincide with the half-life of the isotope (60 days for iodine-125 and 17 days for palladium-103). Usually these symptoms improve over time and respond to alpha-blocker therapy. Patient selection for brachytherapy is extremely important to avoid severe voiding dysfunction and urinary retention. Patients with significant pretreatment symptoms despite medical therapy are poor candidates for an implant as they are much more likely to have severe post-implant LUTS and a higher risk for urinary retention. In brachytherapy series, 2-8% of patients require TURP often within the first six months postimplant because of urinary retention. TURP should be delayed at least three months after the initial seed implantation. The resection should not be aggressive with preservation of apical tissue. Prior to three months, retention is best managed by CIC. Finasteride and leuprolide acetate would require months before any possible benefit and would not be effective in a patient with a small gland. A suprapubic catheter would provide drainage but has the associated problems of infection and bladder irritation. TUMT is contraindicated following radiation therapy.

Scherr D, Bosworth J, Steckel J: Complications of brachytherapy in the treatment of localized prostate cancer, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY, ed 3. Philadelphia, WB Saunders Co, 2001, pp 421-423.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 100, p 3026.

Question 141 of 150
The nerve that may be easily trapped by the tacking sutures during a psoas hitch procedure is the:

A: genitofemoral.

B: ilioinguinal.

C: iliohypogastric.

D: femoral.

E: lateral femoral cutaneous.

A: "genitofemoral." is correct.

The genitofemoral nerve penetrates the body of the psoas muscle at about L3/L4 where it travels caudally along its surface and is vulnerable to suture injury. The other nerves are all lateral or dorsal to the psoas muscle and removed from the operative site.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and

ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 3.

Question 142 of 150
A 34-year-old man has azoospermia with a seminal volume of 2 ml and pH of 8.3. Physical exam shows small soft testicles each with a normal vas and epididymis. FSH is elevated to 3.5 times normal. The next step is:

A: semen fructose determination.

B: karyotype and Y chromosome microdeletion assay.

C: fine needle testicular aspiration.

D: scrotal exploration with testis biopsy and vasography.

E: testicular microdissection and cryopreservation of sperm.

B: "karyotype and Y chromosome microdeletion assay." is correct.

Azoospermic men have an increased incidence of chromosomal abnormalities. Patients thought to have non-obstructive azoospermia should have both a karyotype and Y-chromosome microdeletion analysis. Of the three types of Y chromosome deletions, types a and b rarely if ever have sperm production in the testicles. Type c deletions have patchy sperm production in the testicles some of the time. The latter may benefit from testicular sperm retrieval but the types a and b deletions will likely not. With an FSH three times normal this patient will not have obstructive azoospermia and thus scrotal exploration and a vasogram are not indicated. Fine needle testicular aspiration for diagnosis is unnecessary. Both needle aspiration and testicular microdissection and cryopreservation of sperm are premature without prior genetic testing. In addition needle aspiration is less successful in retrieving sperm from non-obstructed azoospermic patients than open testicular sperm extraction. Semen fructose determination may demonstrate a low fructose concentration in patients with ejaculatory duct obstruction or congenital bilateral absence of the vas deferens. Both of these conditions are associated with low volume acidic semen specimens which are not present in this patient.

Jarow J, Sharlip ID, Belker AM, et al: Report on optimal evaluation of the infertile male: An AUA best practice policy and ASRM Practice Committee report. EVALUATION OF THE INFERTILE MALE BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2001, p 9. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/optimalevaluation.pdf

Question 143 of 150
A 52-year-old woman with a recently diagnosed melanoma undergoes a staging abdominal CT scan that reveals a round 2.8 cm cystic mass in the right kidney and a normal left kidney. On pre- and post-contrast images, the mass measures 71 and 74 Hounsfield units, respectively. The next step is:

A: observation.

B: renal MRI scan.

C: PET scan.

D: needle biopsy.

E: partial nephrectomy.

A: "observation." is correct.

This rounded non-enhancing lesion of the kidney is consistent with a hyperdense cyst. Hyperdense cysts are characteristically more dense than the kidney on noncontrast imaging (typically up to 80 HU) and do not enhance upon contrast administration. In this case, the increase in density of 3 HU is not significant and suggests a nonenhancing lesion. The history of melanoma should lead the clinician to be suspicious of a metastatic lesion, and if the mass were enhancing, needle biopsy would be indicated prior to resection.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1569-1575.

Question 144 of 150
A five-day-old boy has vomiting and dehydration. His serum CO_2 is 12 mEq/l, K+ 5.5 mEq/l, and creatinine 2.2 mg/dl. A VCUG demonstrates posterior urethral valves and bilateral Grade 4 vesicoureteral reflux. The next step is:

A: percutaneous cystostomy.

B: percutaneous nephrostomies.

C: valve ablation.

D: urethral catheter drainage.

E: cutaneous vesicostomy.

D: "urethral catheter drainage." is correct.

The management of the infant with a PUV depends on the severity of the obstruction and the degree of any renal dysplasia present. The main problems arise in management of the infant with severe obstruction and compromised renal function with dehydration, acidosis, and sepsis. Initially, a small infant feeding tube, placed transurethrally, can provide bladder drainage. Once stabilized, valve ablation can be undertaken. Vesicostomy is reserved for infants who cannot undergo primary valve ablation because of the inadequate size of their urethra or for very small, unstable infants. If initial bladder level drainage does not result in satisfactory clinical improvement, temporary supravesical diversion may be considered, however the vast majority of these patients will be found to have renal dysplasia, not urethral vesical obstruction as the etiology the penile of the persistently elevated creatinine.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, pp 3591-3594.

Question 145 of 150
A 28-year-old woman has a history of recurrent urolithiasis. A spiral CT scan shows nephrocalcinosis and a 3 mm right distal ureteral stone. Serum potassium is 3.2 mEq/l, CO_2 18 mEq/l, creatinine 0.8 mEq/l. Urine pH is 6.0. The most likely stone composition is:

A: uric acid.

B: cystine.

C: magnesium ammonium phosphate.

D: calcium phosphate.

E: hydroxyapatite.

D: "calcium phosphate." is correct.

Clinically, RTA is associated with recurrent urolithiasis, calcium phosphate stones, medullary sponge kidney, nephrocalcinosis, hypocitraturia, hypokalemia, metabolic acidosis and urine pH greater than 5.5. Hypocitraturia is the most important metabolic factor for stone formation in type 1 (distal) RTA although hypercalciuria can occur. Potassium citrate (or bicarbonate) corrects the systemic acidosis and normalizes urinary citrate. If hypercalciuria persists in spite of alkali therapy, thiazides should be added.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1380.

Question 146 of 150
The optimal stoma site for the of an ileal conduit is:

A: 2 cm superior and lateral to the umbilicus.

B: 5 cm lateral to the incision at the belt line.

C: in the mid-axillary line lateral to the umbilicus.

D: through the rectus muscle at the peak of the fat roll.

E: lateral to the rectus muscle at the peak of the fat roll.

D: "through the rectus muscle at the peak of the fat roll." is correct.

The site of the stoma should be selected preoperatively. This is done with the patient in a sitting and supine position. Care is taken to place the stoma over the rectus muscle at least 5 cm from the planned incision line. The point chosen should be well away from any skin creases, scars, the umbilicus, belt lines or bony prominences. All stomas should be placed through the belly of the rectus muscle located at the peak of the infraumbilical fat roll. If the stoma is placed lateral to the rectus sheath, a parastomal hernia is likely to occur.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2551-2552.

Question 147 of 150
The radionuclide that has the best tissue to background ratio is:

A: 99mTc-DTPA.

B: 99mTc-MAG-3.

C: 99mTc-DMSA.

D: 99mTc-glucoheptonate.

E: 123 I-iodohippuran.

C: "99mTc-DMSA." is correct.

DMSA is bound to renal proximal tubule cells in progressive amounts over three to six hours. Over time, there will therefore be less background activity and a higher tissue to background ratio. This is particularly important with poorly functioning kidneys. MAG-3, DTPA and Hippuran are all excreted. Functional assessment is done in the first three minutes after injection, during which time there is considerable background activity. Glucoheptonate is a hybrid that is both excreted and bound.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, p 142.

Question 148 of 150
A 45-year-old man has recurrent calcium oxalate nephrolithiasis. Serum calcium and electrolytes are normal, while 24-hour urine demonstrates hypercalciuria. His diet should consist of:

A: high animal protein, normal sodium, low calcium.

B: low animal protein, low sodium, low calcium.

C: low animal protein, low sodium, normal calcium.

D: normal animal protein, low sodium, low calcium.

E: normal animal protein, normal sodium, low calcium.

C: "low animal protein, low sodium, normal calcium." is correct.

Epidemiologic studies have demonstrated that low calcium and increased animal protein consumption place an individual at risk to develop nephrolithiasis. Metabolic studies have demonstrated that increased sodium consumption results in increased calcium excretion and low calcium intake results in increased oxalate excretion. Borghi and associates studied men with recurrent calcium oxalate nephrolithiasis associated with hypercalciuria. Patients were randomized to one of the following diets: 1) low animal protein, 2) low calcium, 3) low sodium, and 4) normal sodium. Only patients on low sodium and normal calcium diet had a decreased incidence of stones. This finding, plus the knowledge that increased intake of a animal protein increases the risk of stones, results in the recommendation that patients with hypercalciuria should be placed on diets low in sodium and animal protein with normal

calcium intake.

Borghi L, Schianchi T, Meschi T, et al: Comparison of two diets for the prevention of recurrent stones in idiopathic hypercalciuria. NEJM 2002;346:77-84.

Question 149 of 150
When comparing post-prostate biopsy hemorrhage to prostate cancer, the signal intensity of prostate cancer on T1 and T2 weighted MRI images is:

A: high T1 and high T2.

B: low T1 and high T2.

C: high T1 and low T2.

D: low T1 and low T2.

E: intermediate T1 and high T2.

D: "low T1 and low T2." is correct.

Prostate MRI scan, especially with combined endorectal and phase-array coils, is used in prostate cancer staging with up to 82% accuracy. The T1- and T2-weighted images are helpful in differentiating between postbiopsy hemorrhage, which presents as a high T1 and a low T2 lesion, and prostate cancer, which presents as a low T1 and low T2 lesion.

Barnes AS, Tempany CMC: Image-guided minimally invasive therapy, in Richie JP, D'Amico (eds): UROLOGIC ONCOLOGY. Philadelphia, Elsevier Saunders, 2005, chap 7, p 115.

Question 150 of 150
Stabilization of the myocardium during life-threatening hyperkalemia associated with loss of P waves and widening of the QRS complex on the electrocardiogram is best accomplished using:

A: I.V. calcium gluconate.

B: I.V. $NaHCO_3$.

C: 10% glucose with regular insulin.

D: potassium exchange resin with sorbitol.

E: hemodialysis.

A: "I.V. calcium gluconate." is correct.

Severe hyperkalemic cardiotoxicity must be treated immediately, not by lowering serum potassium concentration alone but preventing cardiac excitability and antagonizing the cardiotoxic effects of hyperkalemia. Thus, I.V. calcium gluconate is the initial treatment of choice. This must be followed by measures to immediately lower serum potassium since the duration of calcium effects are brief. Bicarbonate and glucose should be given next, but they are short-acting and exchange resins/dialysis

should be planned for more long-term treatment.

Kale AS, Brewer ED: Management of renal failure in children, in Gonzales ET, Bauer SB (eds): PEDIATRIC UROLOGY PRACTICE. Philadelphia, Lippincott, Williams and Wilkins, 1999, chap 5, pp 79-90.

Question 1 of 150
A 66-year-old diabetic man with peripheral neuropathy and a 25 gm palpably normal prostate has urinary frequency, urgency, and urge incontinence. He voided 300 ml with a PVR of 380 ml. Urodynamic studies reveal a maximum uroflow of 8 ml/sec, a voiding pressure of 88 cm H_2O, and a bladder capacity of 850 ml with decreased bladder sensation. Cystourethroscopy reveals mild trilobar prostatic enlargement. The most effective treatment is:

A: CIC.
B: CIC and oxybutynin.
C: neuromodulation.
D: tamsulosin.
E: TURP.

1- E: "TURP." was the correct answer.

Typically described urodynamic findings in diabetics include: impaired bladder sensation, increased cystometric capacity, decreased bladder contractility, impaired uroflow, and later, increased residual urine. The main differential diagnosis in men is the presence or absence of bladder outlet obstruction. In this patient, urodynamic data document bladder outlet obstruction as well as probable diabetic cystopathy. Cystourethroscopy excluded urethral stricture; thus, prostatic obstruction is the likely etiology. CIC with or without medications, is an acce

ptable treatment but in the face of prostatic obstruction, TURP will alleviate the symptoms provided the patient does timed voiding to prevent overdistention. Neuromodulation is not indicated in a patient with bladder outlet obstruction. Given the degree of bladder outlet obstruction and the amount of residual urine, tamsulosin is unlikely to be as effective as TURP.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2033

Question 2 of 150
Placement of a ureteral stent in an unobstructed system will result in:

A: increase in ureteral contractility.
B: decrease in ureteral contractility.
C: atrophy of the ureteral mucosa.
D: atrophy of the ureteral smooth muscle.
E: decrease in intrapelvic pressure.

B: "decrease in ureteral contractility." was the correct answer.

A number of changes occur after placement of a ureteral stent including: hyperplasia and inflammation of the urothelium, smooth muscle hypertrophy, increased intrapelvic pressure, a decrease in ureteral contractility and vesicorenal reflux. Decreased ureteral contractility does contribute to vesicorenal reflex, which may have implications in infected systems in the setting of bladder outlet obstruction.

Chew B, Denstedt J: Access, stents and urinary drainage, in Nakada S, Pearle M (eds): ADVANCED ENDOUROLOGY. Totowa, NJ, Humana Press, 2006, chap 2, p 22.

Question 3 of 150
A 25-year-old man has a thickened, indurated fat mass excised from his spermatic cord at the time of inguinal hernia repair. Final pathology reveals low grade liposarcoma with negative margins. The next step is:

A: observation.
B: inguinal orchiectomy.
C: inguinal orchiectomy and RPLND.
D: inguinal orchiectomy and hemiscrotectomy.
E: inguinal/abdominal radiation.

B: "inguinal orchiectomy." was the correct answer.

Liposarcoma of the paratesticular structures is most often associated with the spermatic cord. it is a rare tumor that is usually well-differentiated. As with all sarcomas of the paratesticular region, inguinal orchiectomy with high ligation of

the spermatic cord with inguinal orchiectomy is generally advised to minimize the chance of local recurrence. Because of the low likelihood of hematogenous or lymphatic spread in a low grade sarcoma, additional radiation or chemotherapy would not likely be necessary. This tumor has a low likelihood of complete response to primary radiotherapy and therefore it is not a reasonable option. Hemiscrotectomy is unnecessary with no violation of the scrotum.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL-WALSH UROLOGY, ed 9. Philadelphia, Elsevier, 2007, chap 29, p 934.

Question 4 of 150
Angiotensin II causes blood pressure elevation by its effect on:

A: peripheral vascular tone and cardiac rate.
B: peripheral vascular tone and blood volume.
C: blood volume and cardiac output.
D: blood volume and renin substrate.
E: the juxtaglomerular apparatus.

B: "peripheral vascular tone and blood volume." was the correct answer.

Renin is a proteolytic enzyme secreted in the juxtaglomerular apparatus of the kidney and is physiologically inert. Angiotensinogen is a plasma globulin substrate of hepatic origin, upon which renin acts to produce angiotensin I. Angiotensin I is a decapeptide which is also physiologically inert. Angiotensin I is acted upon by converting enzyme to produce the octapeptide angiotensin II. Angiotensin II is the first effector hormone of the renin system, and is the only substance directly responsible for elevation in blood pressure in patients with renovascular hypertension. It acts upon the smooth muscle of the peripheral vasculature to cause vasoconstriction, and also stimulates the zona glomerulosa to produce aldosterone which causes sodium retention in the distal tubule and thus produces volume expansion.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1161-1163

Question 5 of 150
Serum osmolality is determined by utilizing a formula which involves the sum of which three osmotically active substances in the blood:

A: sodium, potassium, glucose.
B: sodium, chloride, urea nitrogen.
C: sodium, glucose, urea nitrogen.
D: albumin, glucose, creatinine.
E: albumin, globulin, urea nitrogen.

C: "sodium, glucose, urea nitrogen." is correct.

Osmolality is estimated by computing the sum of serum sodium (mEq/l) x 2, glucose (mg/dl)/18 and urea (mg/dl)/3. These three solutes are the major contributers to osmolality with creatinine, magnesium, phosphate and potassium contributing less. The chloride contribution is taken into account by doubling the sodium concentration.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1146-1148.

Robertson GL: Physiology of ADH secretion. KID INT SUPPL 1987;21:S20-S26.

Question 6 of 150
A two-year-old boy has foul smelling urine and dysuria. A urine culture grew pan-sensitive coagulase negative Staphylococcus. His symptoms resolved with antibiotics and a renal ultrasound is normal. A VCUG is shown. The next step is:

A: prophylactic antibiotics.
B: behavioral modification.
C: transurethral incision of valves.
D: endoscopic puncture.
E: diverticulectomy and ipsilateral ureteral reimplantation.

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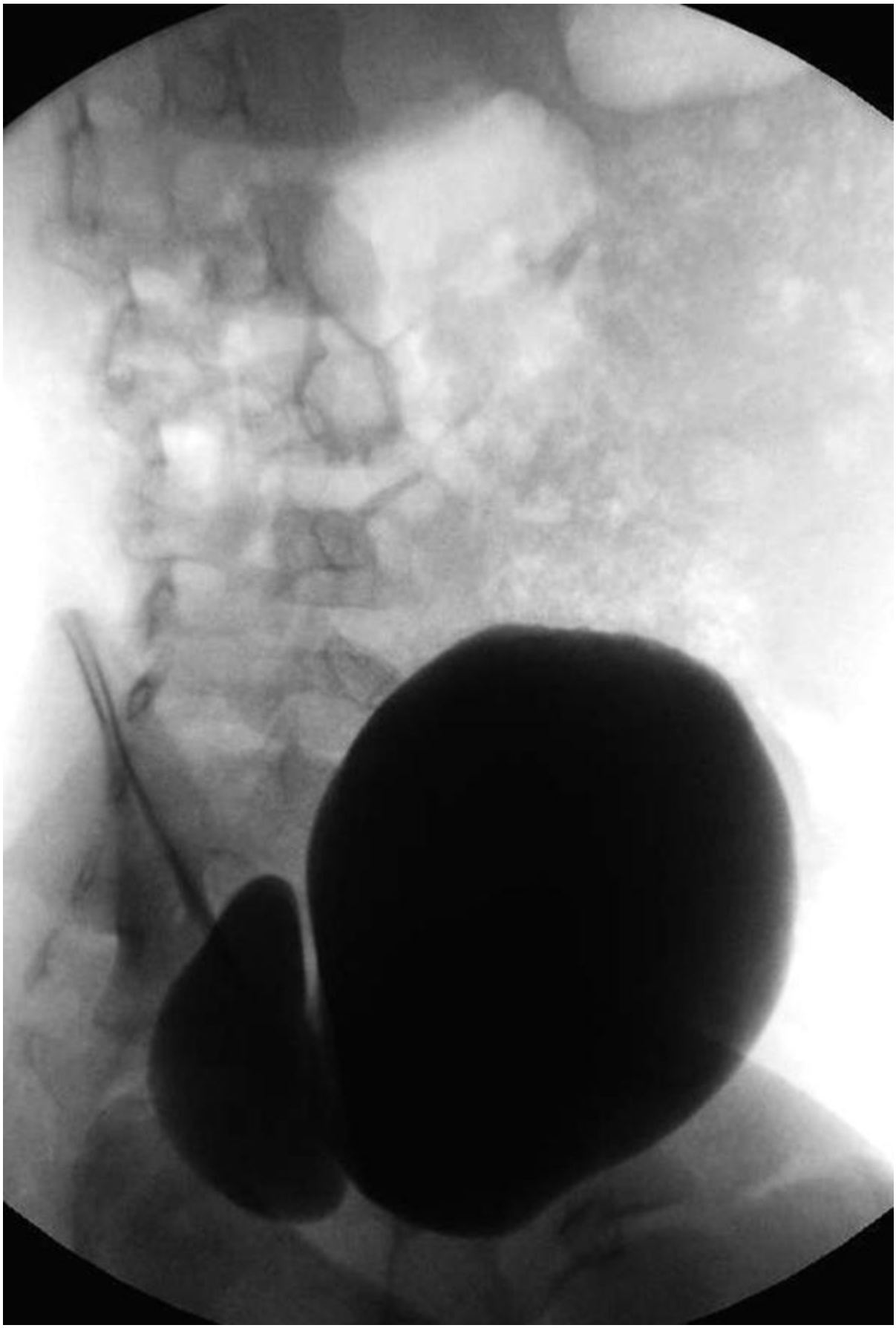


E: "diverticulectomy and ipsilateral ureteral reimplantation." was the correct answer.

The imaging reveals a large congenital right sided bladder diverticulum. There is no evidence of bladder outlet obstruction or valves. This is a source of stasis (incomplete bladder emptying) that will not spontaneously resolve. Smaller periureteral diverticula are associated with dysfunctional elimination and are not treated surgically but in this case diverticulectomy is indicated. Based upon the size of the diverticulum, this child will almost certainly have recurrent infections. As such, prophylactic antibiotics or observation are not appropriate options in a pediatric patient. The diverticulum arises cephalad and lateral to the ureteral orifice. The ureter and diverticulum are intimately associated. The ipsilateral ureter should be reimplanted if it is near or included in the diverticulum whereas a diverticulum on the lateral bladder wall or dome (urachal diverticulum) can be resected without ureteral reimplantation. Both can be performed extravesically with entry into the bladder only when the diverticulum is entered.

Frimberger D, Kropp BP: Bladder anomalies in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 121, pp 3579-3580.

Question 7 of 150

A 22-year-old man involved in an MVC is evaluated for multi-system trauma. CT scan shows complete enhancement of both kidneys, a 2 cm laceration in the lower pole of the left kidney, and a left perinephric hematoma. A 3 cm splenic laceration that does not extend to the hilum is also seen. He is managed with observation. Ten days later, he develops acute abdominal pain. On physical examination, he is diaphoretic and has a rigid abdomen. His temperature is 38.5°C, pulse 120/min, and blood pressure is 90/70 mm Hg. This clinical condition is most likely due to:

A: delayed sepsis.
B: persistent urinary extravasation.
C: delayed renal hemorrhage.
D: delayed splenic hemorrhage.
E: missed bowel injury.

D: "delayed splenic hemorrhage." was the correct answer.

Associated organ injury is common in patients with renal trauma. Nonrenal trauma accounts for the majority of the morbidity and mortality that occurs in such patients. As in the case described, CT allows staging of renal injury and detection of associated organ injury. Nonoperative management of both splenic and renal injury is possible in selected patients with renal injuries associated with limited extravasation and bleeding. Development of delayed bleeding, infection, or hypertension (related to the renal injury) is unlikely. Those cases where there are nonviable renal segments are more likely to require delayed laparotomy. Although splenic lacerations may be managed nonoperatively, up to 40% of those with Type II injuries (splenic laceration not extending to hilum) may require operative intervention. Although either injury described in the case presented may require delayed laparotomy, the splenic injury is more likely. The finding of the rigid abdomen suggests an intraperitoneal process. A missed bowel injury would present within the first several days after injury.

Harbrecht BG, Franklin GA, Miller FB, Richardson JD: Is splenectomy after trauma an endangered species? AM SUR 2008;74:410-412.

McAninch W, Santucci RA: Renal and ureteral trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 39, p 1282.

Question 8 of 150
A 24-year-old man with azoospermia and an ejaculate volume of 0.5 ml has a palpably normal left vas deferens, a nonpalpable right vas deferens, and a normal DRE. Both testes measure 30 ml. The most useful diagnostic study for infertility is:

A: TRUS.
B: serum testosterone.
C: post-ejaculatory urinalysis.
D: testicular biopsy.
E: seminal fructose.

A: "TRUS." was the correct answer.

The differential diagnosis for low ejaculate volume azoospermia is vasal agenesis, ejaculatory duct obstruction, and ejaculatory dysfunction. The presence of unilateral vasal agenesis on physical examination strongly suggests the presence of

a congenital anomaly with contralateral segmental vasal atresia. TRUS will help differentiate between a potentially treatable ejaculatory duct obstruction and, more likely, absence or hypoplasia of the contralateral seminal vesicle and ampullary vas deferens. Patients with vasal agenesis do not require either a serum FSH or testicular biopsy unless they have testicular atrophy or another historical risk factor. Seminal fructose does not help differentiate between these two disorders; it is absent in both.

Kolettis PN, Sandlow JI: Clinical and genetic features of patients with congenital unilateral absence of the vas deferens. UROL 2002;60:1073-1076.

Sigman M, Jarow JP: Male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 19, pp 619-622.

Question 9 of 150
A 47-year-old man has palpable right inguinal adenopathy following partial penectomy for a 4 cm T2 squamous cell cancer. Needle biopsy of a right inguinal lymph node reveals metastatic cancer. The pelvic lymph nodes are radiologically normal. The next step is:

A: antibiotic therapy and reexamination.
B: pelvic node dissection.
C: right superficial inguinal node dissection.
D: right superficial and deep, left superficial inguinal node dissection.
E: bilateral superficial and deep inguinal node dissection.

D: "right superficial and deep, left superficial inguinal node dissection." was the correct answer.

Men with invasive penile cancer are at high risk of inguinal metastasis. Those men who present with palpable inguinal lymph nodes often have an inflammatory or infectious etiology due to poor hygiene. In these patients, two approaches can be employed. Patients can be treated with a two to four week course of antibiotic therapy to assess for resolution of lymphadenopathy. Alternatively, fine needle aspirate of suspicious nodes can be performed at presentation. If positive, this removes the need for delayed therapy due to antibiotics. Men with palpable nodes proven positive for metastatic disease should undergo superficial and deep inguinal

node dissection as those with limited nodal disease are found to have up to an 80% five year disease-free survival with complete resection of nodal disease. Owing to the high rates of cure achieved with aggressive resection in limited nodal disease, many have advocated early dissection in men with invasive penile cancer and no palpable lymphadenopathy. In these men, dissection can be limited to nodes superficial to the fascia lata unless positive on evaluation. In men with palpable disease on one side, contralateral superficial dissection is mandatory owing to the high rate of lymphatic cross-over. In these cases, contralateral metastasis is noted in 50% of patients.

Pettaway CA, Lynch DF Jr, Davis JW: Tumors of the penis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 31, pp 983-984.

Question 10 of 150
The best predictor of immediate graft function following living donor renal transplantation is:

A: warm ischemia time.
B: cold ischemia time.
C: renal revascularization time.
D: total ischemia time.
E: donor kidney urine output just prior to nephrectomy.

E: "donor kidney urine output just prior to nephrectomy." was the correct answer.

While both cold (storage) and warm (anastomotic) ischemic times have important roles in determining immediate function for deceased donor renal transplant recipients, these times are negligible in living donor transplantation and rarely affect immediate graft function. The single best determinant of immediate function in live donor transplantation is the functional status of the kidney at the moment it is removed from the donor.

Barry JM, Jordan ML, Conlin, MJ. Renal Transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, Chap 40, pp 1301-1303.

Question 11 of 150
A 10 Fr nephrostomy tube was placed uneventfully to drain a pyonephrotic kidney. Follow-up nephrostogram reveals a 6 cm staghorn calculus. The percutaneous nephrostomy tube enters directly into the renal pelvis. At time of percutaneous nephrolithotomy, optimal access is obtained via:

A: dilating the established nephrostomy tract.
B: a new percutaneous tract - middle anterior calyx.
C: a new percutaneous tract - middle posterior calyx.
D: a new percutaneous tract - inferior anterior calyx.
E: a new percutaneous tract - inferior posterior calyx.

E: "a new percutaneous tract - inferior posterior calyx." was the correct answer.

Percutaneous renal access into the collecting system should be as peripheral as possible to help avoid serious hemorrhage. Direct puncture into an infundibulum or into the renal pelvis substantially increases the risk of hemorrhage. The temptation to utilize a previously placed nephrostomy tube in a suboptimal location should be abandoned. A new percutaneous access should be established. Staghorn calculi are best approached through polar access. Inferior or superior pole entry optimizes access to most of the collecting system. An interpolar puncture hinders entry into the superior or inferior calyceal groups. A posterior calyceal puncture decreases the need to torque instruments into the collecting system and helps reduce hemorrhage and eases stone extraction.

Sampaio FJB: Surgical anatomy of the kidney, in Smith AD, Badlani GH, Bagley DH, et al (eds): SMITH'S TEXTBOOK OF ENDOUROLOGY. Quality Medical Publishing, St. Louis, 1996, chap 12, pp 153-184.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, pp 1488-1490.

Question 12 of 150
The most useful parameter to assess the malignant risk of an incidental adrenal mass is tumor:

A: grade.
B: histology.
C: isointensity on MRI scan.
D: metabolic activity.
E: size.

E: "size." was the correct answer.

Incidentally discovered adrenal masses have been reported in up to 4.4% of abdominal CT scans, most commonly in female patients between the ages of 50 and 70 years. A small minority of adrenal masses will be malignant, most often due to adrenocortical carcinoma or metastases to the adrenal gland. The primary indication for surgery is suspicion of malignancy based on size criteria, radiographic findings, or interval growth documented on follow-up imaging. The most useful parameter for assessing risk of malignancy is size; 5-6 cm is generally considered worrisome enough for surgical excision. Tumor histology and grade do not readily predict metastatic behavior. A high signal intensity ratio on T2 weighted MRI images suggests that the lesion is not a benign adenoma. Metabolic activity is common in both benign and malignant adrenal masses.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1838-1839.

Novakovic K, Ersahin C, Picken M, Campbell SC: Malignant adrenal tumors. AUA UPDATE SERIES 2004, vol 23, lesson 23, p 245.

Question 13 of 150
A 65-year-old post-menopausal woman with decreased bone density develops her third calcium oxalate renal calculus in five years. Metabolic evaluation reveals a mildly elevated urinary calcium after calcium loading, consistent with Type I absorptive hypercalciuria. The most appropriate treatment is:

A: sodium cellulose phosphate.
B: orthophosphate.
C: hydrochlorothiazide.
D: potassium citrate.
E: magnesium oxide.

C: "hydrochlorothiazide." was the correct answer.

Sodium cellulose phosphate can restore normal calcium excretion in those with absorptive hypercalciuria. However, it can lead to a negative calcium balance. Thiazides are appropriate treatment for those with mild to moderate absorptive hypercalciuria and those at an increased risk of bone disease such as post-menopausal women and growing children. Thiazide therapy induces an increase in bone density. Thiazides may lose their hypocalciuric effect after two to four years, and patients may be switched to sodium cellulose phosphate for a short period of time. Orthophosphates are indicated for the management of absorptive hypercalciuria, Type III, where a renal leak of phosphate is thought to stimulate 1,25-(OH)2D synthesis. Orthophosphates inhibit this synthesis. Potassium citrate will alkalinize the urine but will not affect the serum or urinary calcium. Magnesium oxide may bind oxalate in the gut but will no effect on urinary calcium.

Preminger GM: Is there a need for medical evaluation and treatment of nephrolithiasis in the age of lithotripsy. SEM UROL 1994;12:51.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1418.

Question 14 of 150
In patients with androgen-independent metastatic prostate cancer, the median improvement in overall survival of docetaxel + prednisone every three weeks compared to mitoxantrone + prednisone is:

A: 2.5 months.
B: 4.5 months.
C: 6 months.

D: 12 months.
E: 18 months.

A: "2.5 months." is correct.

Docetaxel is currently the only FDA-approved agent that has been shown to prolong survival in men with androgen-independent metastatic prostate cancer. In the pivotal trial of docetaxel, patients who received an every three week administration of the drug had a median survival of 18.9 months, as opposed to a 17.3 month median survival for patients who received docetaxel on a weekly basis and 16.4 months (difference of 2.5 months) for those who received mitoxantrone. The p-value comparing docetaxel every three weeks to mitoxantrone (which does not prolong survival but improves quality of life) was p=0.009. These findings led the FDA to approve docetaxel for use in these patients.

Tannock I, DeWit R, Berry W, et al: Docetaxel plus prednisone or mitoxantrone plus prednisone for advanced prostate cancer. NEJM 2004;351:1502-1512.

Eisenberger MA, Carducci M: Treatment of hormone-refractory prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 105, pp 3108-3110.

Question 15 of 150
A 24-year-old man elects to undergo a modified right template RPLND following right radical orchiectomy for stage I NSGCT. The left limit of the dissection should be:

A: the medial edge of vena cava.
B: the medial edge of the aorta.
C: the mid-aorta.
D: the lateral edge of the aorta.
E: the medial edge of the left ureter.

E: "the medial edge of the left ureter." was the correct answer.

Lymphatic spread of testicular cancer to the contralateral retroperitoneum is rare with left-sided tumors, but more common with right sided tumors. To this end, the contralateral margin differs for left- and right-sided modified RPLND templates. For left sided dissections, the right margin is the lateral edge of the IVC, primarily

to ensure collection of the interaortacaval lymph nodes. On the right side, the dissection should be carried out further, optimally to the left ureter, as occasionally there will be involvement of the para-aortic lymph nodes in these patients. Although some authors have suggested that bilateral modified RPLND should be performed in all patients with right-sided tumors, the additional dissection down the left common iliac artery has not been shown to be of any additional benefit.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 915-916.

Question 16 of 150
One month after L5 laminectomy, a 30-year-old woman develops lower extremity weakness, a residual urine of 300 ml, and an intermittent urinary stream. Videourodynamics demonstrates detrusor-sphincter dyssynergia. The most likely explanation is:

A: pseudodyssynergia.
B: recurrent lumbar disk herniation.
C: cauda equina syndrome.
D: undiagnosed multiple sclerosis.
E: permanent nerve injury from disk.

D: "undiagnosed multiple sclerosis." was the correct answer.

The urodynamic finding of detrusor external sphincter dyssynergia (DESD) indicates that a suprasacral spinal lesion is present. This cannot be explained by a recurrent hernia or permanent injury to L5. The most likely supraspinal lesion in a woman this age is multiple sclerosis.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2019-2020.

Question 17 of 150
Bacterial biofilms forming on implants and foreign bodies in the urinary tract are comprised of a(an):

A: surface film of compact microorganisms.
B: conditioning film comprised of carbohydrate molecules.
C: linking film from which plank-tonic organisms can arise and spread.
D: accumulation of microorganisms and their extracellular products forming a structured community.
E: layer of mucopolysaccharide excreted by bacterial cells to protect them from WBC infiltration.

D: "accumulation of microorganisms and their extracellular products forming a structured community." was the correct answer.

Bacterial biofilms arise from bacterial adherence and growth of bacteria on solid surfaces and foreign bodies in the urinary tract. Bacteria form biofilms in a variety of environments, particularly on implants and stents in the urinary tract. A biofilm is defined as the accumulation of microorganisms and their extracellular products to form a structured community on a surface. Factors that influence bacterial adhesion to devices include the biomaterial surface characteristics, bacterial surface features, and the presenting clinical condition.

Frank DN, Wilson SS, St Amand AL, Pace NR: Culture-independent microbiological analysis of Foley urinary catheter biofilms. PLoS One. 2009;4:e7811 Stickler DJ; Medscape. Bacterial biofilms in patients with indwelling urinary catheters. NAT CLIN PRACT UROL 2008;5:598-608. Epub 2008 Oct 14.

Choong S, Whitfield H: Biofilms and their role in infections in urology. BJU INTERNAT 2000;86:935-941.

Question 18 of 150
A 25-year-old man has inadequate erections since sustaining a pelvic fracture in a MVC two years ago. After a successful urethral stricture repair, he denies any difficulty with orgasm and ejaculation. Intracavernosal injection of 15 ug of prostaglandin E_1 produces a soft erection. The next step is:

A: infusion cavernosography.

B: pelvic/pudendal arteriography.
C: infusion cavernosometry.
D: intracavernosal injection of 30 ug of prostaglandin E_1.
E: color Doppler study of penile arteries.

E: "color Doppler study of penile arteries." was the correct answer.

This patient most likely has either an arterial or a neurologic injury to explain his erectile difficulty. A neurologic lesion is less likely because of his failure to respond with an erection to a reasonable dose of prostaglandin E_1. Patients with neurogenic injuries frequently respond to very low doses of intracavernosal agents. The major clinical question which needs to be answered is whether or not this patient has an arterial injury. Infusion cavernosography and infusion cavernosometry are studies which demonstrate the extent and site of corporovenous leakage. Fifteen ug of prostaglandin E_1 is a reasonable dose of drug to administer and increasing the dose to 30 ug would likely not produce more information. The study of choice to determine the presence of arterial disease in this clinical situation is a color Doppler study of the penile arteries before and after the intracavernosal injection of vasoactive drugs. Only after arterial disease has been diagnosed and only when operative revascularization is under consideration should pelvic/pudendal arteriography be performed.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, pp 757-759.

Question 19 of 150
Three weeks after a retropubic bladder neck suspension, a 40-year-old woman develops pelvic and suprapubic pain associated with temperatures to 38.5°C. She experiences difficulty adducting her thighs and has pain on palpation of her symphysis pubis. The most likely diagnosis is:

A: osteitis pubis.
B: osteomyelitis of pubis.
C: obturator nerve injury.
D: urinary extravasation.
E: pelvic abscess.

A: "osteitis pubis." was the correct answer.

This patient exhibits classic signs and symptoms of osteitis pubis. Pelvic and suprapubic pain, fever, and difficulty with thigh adduction are classic findings. Osteitis pubis has been reported to occur in up to 2.5% of women who have undergone the retropubic bladder neck suspension. Pubic osteomyelitis is possible but is far less common than osteitis pubis. Obturator nerve injury (usually secondary to retractors) can occur following cystourethropexy but does not present with symptoms three weeks postoperatively. Urinary extravasation would be very rare three weeks postoperatively. The signs and symptoms are much more in keeping with osteitis pubis than they are with pelvic abscess.

Chapple CR: Retropubic suspension surgery for incontinence in women, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 65, p 2176.

Question 20 of 150
A 19-year-old woman is treated with ampicillin for a UTI and develops a pruritic groin rash. Physical examination reveals poorly marginated, red patches on her inner thighs, inguinal folds, and labia. Satellite papules and pustules are scattered at the periphery of the inflammatory process. The most likely diagnosis is:

A: fixed drug reaction.
B: contact dermatitis.
C: candidiasis.
D: molluscum contagiosum.
E: lichen planus.

C: "candidiasis." was the correct answer.

Infection of the crural folds with Candida albicans and other Candida species is a very common condition. In women, Candida species are normal inhabitants of the gastrointestinal tract and are commonly present asymptomatically in the vagina. With a constant source of these organisms so nearby, it is not surprising that they frequently spread to the cutaneous aspects of the groin. The hallmark of cutaneous candidiasis is that of bright red inflammation. The initial changes occur at the apex of the crural fold; subsequently, the inflammatory plaque expands in a radial fashion to all surrounding skin. Generally small pustules overlying the red plaques can be identified, and sometimes, satellite lesions are found as solitary papulopustules separate from, but adjacent to the larger primary plaque. The

degree to which pruritus is present varies greatly, but itching can be quite severe at times. A clinical diagnosis can be confirmed by culture. Alternatively, a KOH examination is useful if intact pustules are present. Fixed drug eruptions are typically circular hyperpigmented lesions. Contact dermatitis would not be expected to be bilateral. Molluscum contagiosum occurs primarily in children and has a different appearance, although a sexually transmitted form exists. Lichen planus has violacious flat topped papules and small white lesions on the genitalia.

RS Pannell, DM Fleming, KW Cross: The incidence of molluscum contagiosum, scabies and lichen planus. EPIDEMION INF 2005;133:985-991.

Link RE: Cutaneous diseases of the external genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 13, p 425.

Question 21 of 150
The prostate biopsy technique that samples the anterior prostate gland most effectively is the:

A: 10-core biopsy.
B: 12-core biopsy.
C: saturation biopsy.
D: transurethral biopsy.
E: transperineal biopsy.

E: "transperineal biopsy." was the correct answer.

Traditional 10-core, 12-core, and even saturation biopsies utilize a transrectal approach, which limits access to the anterior prostate. Under regional or general anesthesia, the transperineal approach uses a template system to sample the prostate. This grid system is similar to the one used for brachytherapy. The advantage to the transperineal approach is its optimal access to the anterior and apical gland, particularly in high-risk patients with prior negative biopsies. The 10-core, 12-core, and saturation biopsy are most apt at sampling the peripheral zone.

Ramey JR, Halpern EJ, Gomella LG: Ultrasonography and biopsy of the prostate, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 92, pp 2889-2892.

Question 22 of 150
Patients with polycystic kidney disease, pain, azotemia, and hypertension who undergo laparoscopic marsupialization of their cysts will most likely experience:

A: deterioration of renal function.
B: deterioration of blood pressure control.
C: improvement in renal function.
D: improvement in blood pressure control.
E: relief of pain.

E: "relief of pain." was the correct answer.

Patients with autosomal dominant polycystic kidney disease (ADPKD) may have intractable cyst pain. Standard practice has been to attempt percutaneous drainage of affected cysts, and if unsuccessful, to proceed with open surgical drainage. More recently laparoscopic renal cyst marsupialization has been performed for painful ADPCKD. The results document prolonged pain relief without significant long-term effects on renal function or blood pressure. There may be some improvement in blood pressure, but it is transient.

Novick AC: Open surgery of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 50, p 1755.

Question 23 of 150
A 63-year-old woman has lethargy and joint pain four years following sigmoid neobladder creation. Serum studies reveal bicarbonate 20 mEq/l, calcium 9.1 mg/dl, alkaline phosphatase 249 U/l, hematocrit of 34%. The next step is:

A: oral calcium and Vitamin D.
B: oral magnesium and Vitamin D.
C: oral calcium and potassium citrate.
D: intramuscular Vitamin B12.
E: oral bisphosphonate.

C: "oral calcium and potassium citrate." was the correct answer.

Osteomalacia occurs when mineralized bone is reduced and the osteoid component becomes excessive. Osteomalacia has been reported in patients with all forms of urinary diversion but is most common in colonic continent diversion and especially in postmenopausal women. The metabolic acidosis is buffered by the bone with release of bone calcium. Correction of acidosis and calcium supplementation will result in symptomatic relief and restoration of bone density. Major alterations in serum bicarbonate are not usually present and calcium is usually low normal. Patients who develop osteomalacia generally complain of lethargy; joint pain, especially in the weight-bearing joints; and proximal myopathy. The alkaline phosphatase level is elevated. Although bisphosphonates will decrease bone resorption they do not address the root cause of the problem. Vitamin B12 deficiency is not seen in colonic urinary diversion.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2574.

Question 24 of 150
A 50-year-old man with end-stage polycystic kidney disease is on chronic hemodialysis. His pre-dialysis potassium is consistently in excess of 5.6 mEq/l. He is dialyzed three times per week for 4-1/2 hours per treatment. The most likely cause of his hyperkalemia is:

A: dietary indiscretion.
B: chronic alkalosis.
C: gastrointestinal bleeding.
D: inadequate dialysis.
E: adrenal insufficiency.

A: "dietary indiscretion." was the correct answer.

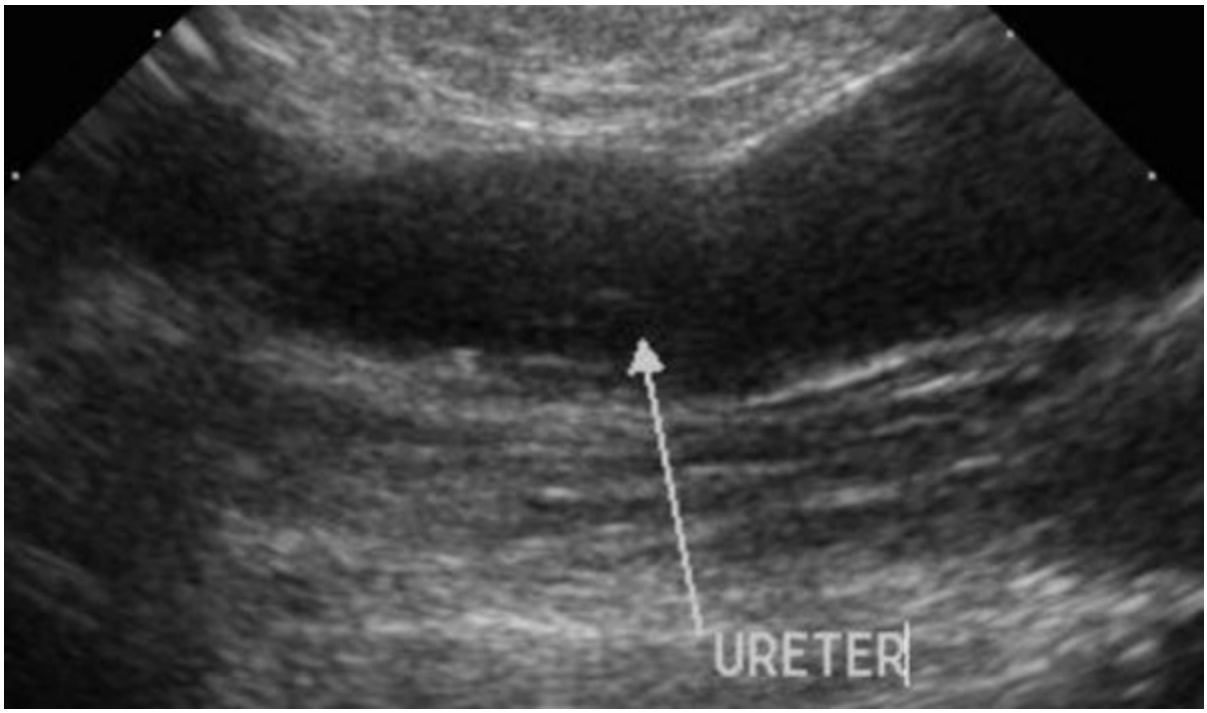
Hyperkalemia is usually not a problem for patients with chronic renal failure. Even end-stage kidneys are capable of some potassium excretion, and significant amounts of potassium may be lost via the intestinal tract. Potassium is restricted in a chronic renal failure diet and the associated protein restriction also curtails potassium intake. While all of the answers are possibilities, excessive intake of potassium is the most common cause of hyperkalemia.

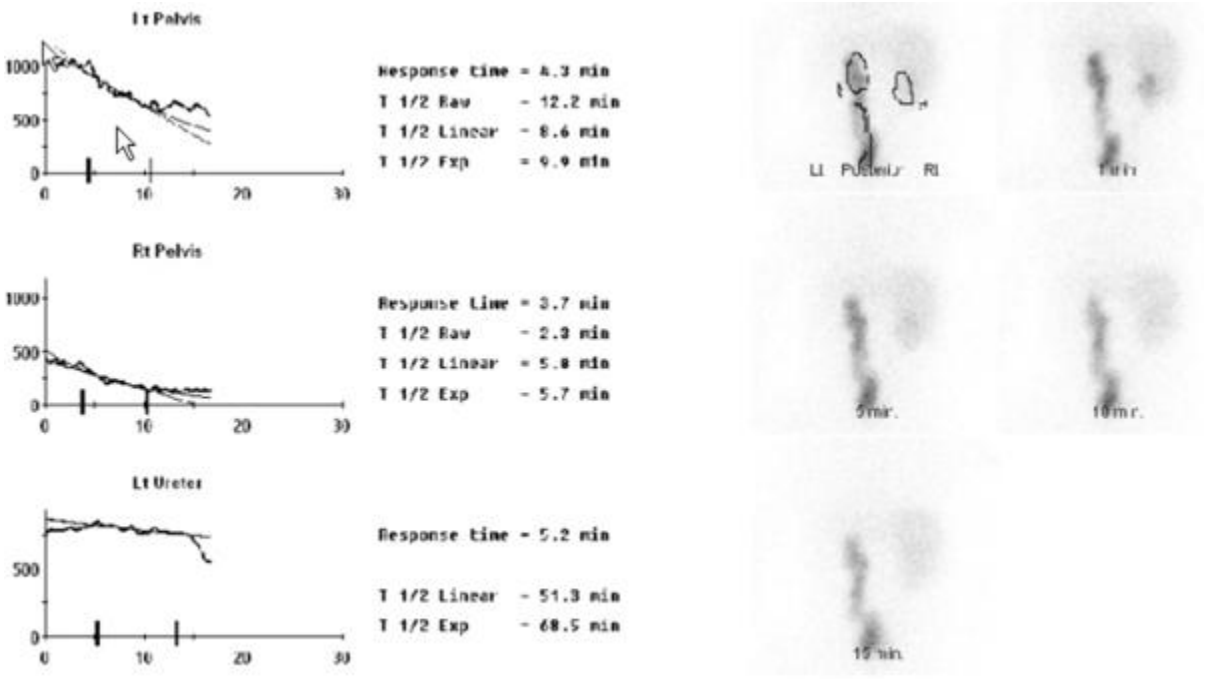
Goldfarb DA, Nally JV Jr, Schreiber MJ Jr: Etiology, pathogenesis, and

management of renal failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 41, pp 1341-1342.

uestion 25 of 150
A newborn boy with a history of left prenatal hydroureteronephrosis develops gram negative urosepsis despite prophylactic amoxicillin. VCUG is normal. Renal ultrasound and MAG-3 renal scan are shown. The differential renal function is 74/26 (right/left). The next step is:

A: observation.
B: change prophylaxis to trimethoprim-sulfamethoxazole.
C: cutaneous pyelostomy.
D: distal cutaneous ureterostomy.
E: tapered ureteral reimplantation.





D: "distal cutaneous ureterostomy." was the correct answer.

Gram negative sepsis in a child less than three months of age has a mortality approaching 15-20%. In an infant less than three months of age with a gram negative UTI, there is a 30% chance of a recurrent UTI over the next six months.

In this infant with an obstructing primary megaureter and ipsilateral decreased renal function, surgical intervention is indicated. A tapered ureteral reimplantation would be technically very difficult at this age and should be deferred until older than one year of age. The preferred treatment is a low end cutaneous ureterostomy. Altering prophylaxis to sulfamethoxazole trimethoprim should not be done in an infant due to the risk of kernicterus and hematopoietic dysfunction.

Cordero L, Rau R, Taylor D, Ayers LW: Enteric gram-negative bacilli bloodstream infections: 17 years' experience in a neonatal intensive care unit. AM J INF CONTROL 2004;32:189-195.

Biyikli NK, Alpay H, Ozek E, et al: Neonatal urinary tract infections: Analysis of the patients and recurrences. PED INTERN 2004;46:21-25.

Question 26 of 150
A 36-year-old man with a T10 spinal cord injury has chronic, asymptomatic bacteriuria unresponsive to antimicrobial therapy. He is managed by CIC obtaining volumes up to 400 ml. Cystometry demonstrates detrusor areflexia with high bladder compliance. A renal ultrasound is normal except for a 4 mm calculus in the left renal parenchyma. The best method of management is:

A: reassurance.
B: localizing urine cultures.
C: urinary acidification.
D: SWL.
E: sphincterotomy and condom catheter drainage.

A: "reassurance." was the correct answer.

Bacteriuria occurs in the majority of spinal cord injured patients managed by CIC. This patient's bacteriuria is not likely to originate from the small renal stone, nor would stone removal alleviate the bacteriuria. Localizing urine cultures are not necessary. The patient needs reassurance that chronic bacteriuria is not concerning, provided his urine storage pressures are low and he is symptom free. Urine acidification has not been proven to decrease the risk of bacteriuria in spinal cord injured patients. Sphincterotomy and condom catheter drainage in this patient with reasonable hand function is not an appropriate alternative, and will not reduce the incidence of bacteriuria.

Wan J, Fleenor S, Kielczewski P, McGuire EJ: Urinary tract status of patients with

neurogenic dysfunction presenting with upper tract stone disease. J UROL 1992;148:1126-1128.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 295-299.

Question 27 of 150
A patient has stress urinary incontinence one year after radical retropubic prostatectomy. However, stress incontinence observed on physical examination is not documented during a Valsalva maneuver under fluoroscopy. The test was performed using a 12 Fr urethral catheter at a volume of 200 ml. The most likely explanation for the absence of demonstrable incontinence during the urodynamic test is:

A: insufficient volume instilled.
B: urethral catheter is too large.
C: involuntary bladder contraction.
D: poor Valsalva effort.
E: impaired contractility.
B: "urethral catheter is too large." was the correct answer.

With a stricture of the urethra or a bladder neck contracture using a catheter as small as 9 Fr may not allow urine to exit around it. Using a rectal pressure as an estimate of intra-abdominal pressure or use of a suprapubic catheter represent alternative methods. More simply, a smaller diameter catheter such as 7 Fr or less can be used.

Dector RM, Harpster L: Pitfalls in leak point pressure determination. J UROL 1992;149:588-591.

Maniam P, Goldman HB: Removal of transurethral catheter during urodynamics may unmask stress urinary incontinence. J UROL 2002;167:2080-2082.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, pp 1988-1989, 2005-2006.

Question 28 of 150
The most appropriate perioperative management of a patient undergoing adrenalectomy for Cushing's syndrome is:

A: hydration, alpha-blockers, and stress-dose steroids.
B: beta-blockers, stress-dose steroids and careful glycemic control.
C: potassium sparing diuretics and stress-dose steroids.
D: stress-dose steroids and careful glycemic control.
E: potassium sparing diuretics, stress-dose steroids, and careful glycemic control.

D: "stress-dose steroids and careful glycemic control." was the correct answer.

Patients undergoing adrenalectomy for Cushing's syndrome have an excess of corticosteroids from an adrenal adenoma or carcinoma. These patients need stress-dose steroids and careful glycemic control as they often have obesity and diabetes. Alpha-blockers and hydration are indicated perioperatively for patients with pheochromocytoma. Beta-blockers may also be necessary preoperatively for patients with pheochromocytoma if they are tachycardic after alpha-blockade. Potassium sparing diuretics are important for the perioperative management of patients with hyperaldosteronism (Conn's disease) as they often have significant hypokalemia.

Chow GK, Blute ML: Surgery of adrenal glands, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 54, p 1871.

Question 29 of 150
In chronic ureteral obstruction, the glomerular filtrate exits the renal pelvis primarily by:

A: pyelosinus backflow.
B: pyelolymphatic backflow.
C: extravasation from the renal pelvis.
D: reabsorption from renal pelvis.
E: pyelovenous backflow.

E: "pyelovenous backflow." was the correct answer.

Following acute ureteral obstruction, the renal pelvic pressure is initially elevated but gradually returns to normal. Glomerular filtrate exits the renal pelvis by extravasation into the perirenal spaces, pyelolymphatic backflow and pyelovenous backflow. It is believed that 80-90 percent of the filtrate in chronic hydronephrosis is reabsorbed in the tubules and exits via the renal veins.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1200.

Question 30 of 150
A 47-year-old uncircumcised married man is diagnosed with high grade Ta squamous cell carcinoma of the foreskin. His wife should undergo:

A: observation.
B: HPV vaccination.
C: Pap smear.
D: imiquimod therapy.
E: cervix biopsy.

C: "Pap smear." is correct.

HPV infection is associated with the development of penile cancer. Wives or ex-wives of men with penile cancer have a threefold higher risk of cervical carcinoma. The male partners of women with cervical intraepithelial neoplasia have a significantly higher incidence of penile intraepithelial neoplasia. Therefore, screening with Pap smear and pelvic exam is prudent in this setting. HPV vaccination is inappropriate because it is only effective prior to exposure. More aggressive therapy such as biopsy or topical therapy is inappropriate unless a diagnosis of cervix cancer is suspected on physical exam and Pap smear.

Pettaway CA, Lynch DF Jr, Davis JW: Tumors of the penis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 31, p 965.

Question 31 of 150
A 36-year-old woman with cerebral palsy on CIC develops urgency, incontinence with severe perineal skin ulceration. Urodynamics show a 200 ml capacity bladder with overactive contractions and no stress urinary incontinence. She has failed antimuscarinics. Due to her body habitus, CIC is difficult per urethra. The best management is:

A: detrusor myomectomy.
B: ileal conduit.
C: Indiana pouch.
D: bladder augmentation with catheterizable abdominal channel.
E: bladder augmentation with fascial sling.

D: "bladder augmentation with catheterizable abdominal channel." was the correct answer.

Bladder augmentation represents the best solution to this complex problem; however, this will commit the patient to CIC. In selected circumstances such as this, a continent catheterizable abdominal channel in conjunction with a bladder augmentation is appropriate. The urethral sphincter is intact in this patient as evidenced by a very high abdominal leak pressure. In a patient desiring a continent solution, an ileal conduit would not be indicated. Use of an Indiana pouch would require ureteral-enteric reanastomosis and a small but definitive risk for upper tract obstruction at the anastamosis. Detrusor myomectomy has not been shown to improve capacity long-term.

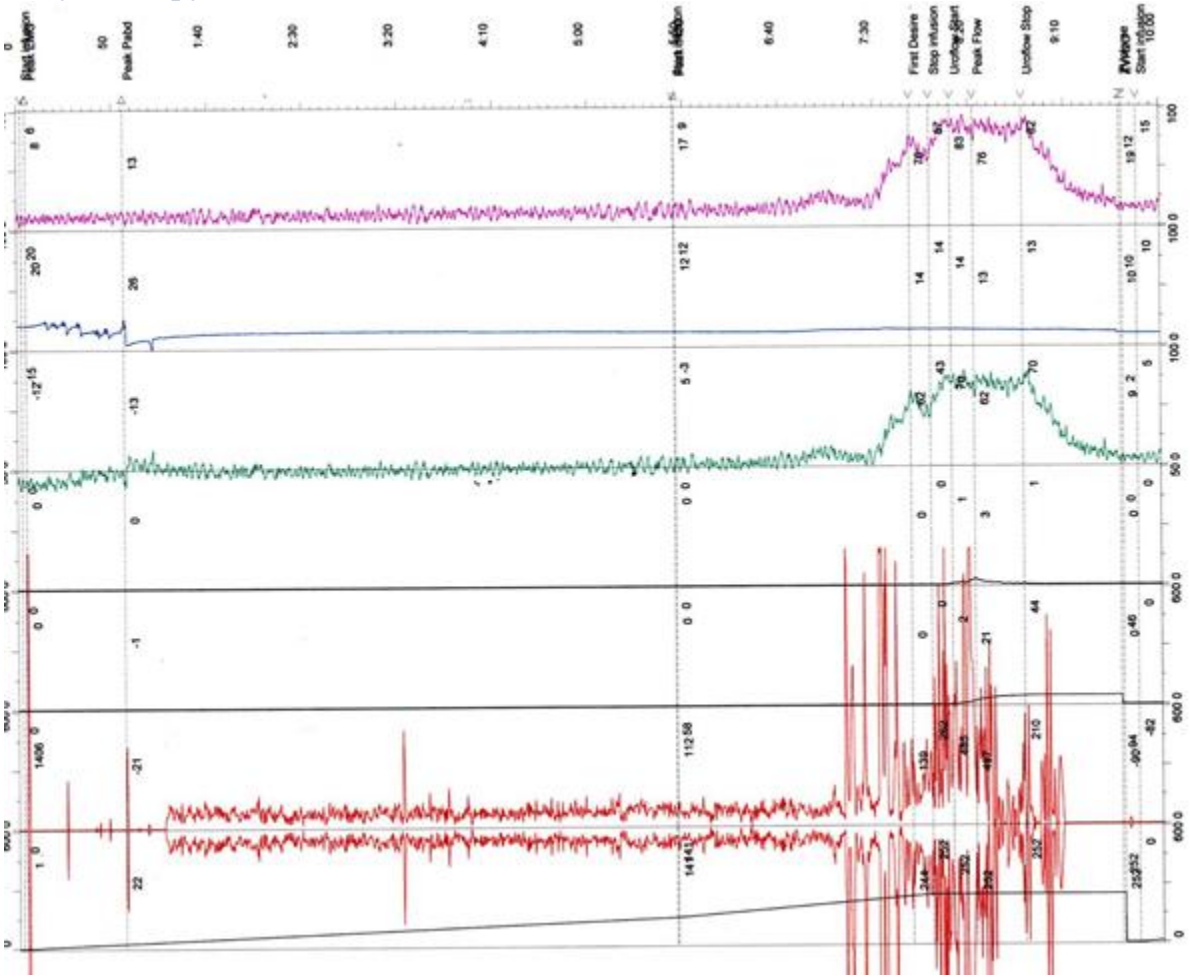
Rivas DA, Chancellor MB: Neurogenic vesical dysfunction. UROL CLIN N AM 1995;22:579-591.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, pp 3692-3693.

Question 32 of 150

A 47-year-old man with relapsing remitting multiple sclerosis has severe urinary frequency and incontinence. He has been treated with tamsulosin for six months with no improvement in his symptoms. Examination reveals a 40 gm smooth prostate. CMG, pressure-flow study is shown. The next step is:

A: renal ultrasound.
B: videourodynamics.
C: MRI scan of the spine.
D: TRUS.
E: cystoscopy.



A: "renal ultrasound." was the correct answer.

This urodynamic study documents neurogenic detrusor overactivity and detrusor external sphincter dyssynergia in a patient with MS. Videourodynamics would be redundant and unnecessary. Male MS patients with detrusor sphincter dyssynergia appear to be at greatest risk for urological complications including upper tract

deterioration. The upper tracts must be assessed early in a male patient with dyssynergia. Cystoscopy is unlikely to influence treatment planning, and would not be the most appropriate first step. MRI scan of the spine would be indicated in the scenario of unknown pre-existing neurogenic disease, but is unnecessary with a diagnosis of MS. A TRUS would be unnecessary as a TURP would not be recommended treatment in the scenario of neurogenic voiding dysfunction.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2020.

Question 33 of 150
A four-year-old boy with a PUV has a vesicostomy. Serum creatinine is 0.6 mg/dl. Ultrasound shows minimal hydronephrosis. Videourodynamics show a bladder capacity of 30 cc with a pressure of 14 cm H_2O when leakage occurs from the vesicostomy with no reflux. Undiversion is considered. The best management is resection of the posterior urethral valves and:

A: ileal augmentation cystoplasty.
B: ileal augmentation with appendicovesicostomy.
C: bladder cycling via the vesicostomy.
D: primary closure of the vesicostomy.
E: autoaugmentation cystoplasty.

D: "primary closure of the vesicostomy." was the correct answer.

There was at one time concern that a cutaneous vesicostomy caused permanent loss of bladder volume and compliance. However, recent studies show that it does not significantly affect either. Preoperative videourodynamics showing a small bladder capacity do not predict eventual functional bladder capacity. Approximately 75% of children will have normal bladder function after vesicostomy closure. The need for bladder augmentation is more related to the effects of the primary pathological condition on the detrusor. Augmentation cystoplasty is rarely needed after undiversion in patients with a PUV. The eventual need for augmentation should be assessed with sequential follow-up after the vesicostomy has been closed.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3701.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, pp 3591-3592.

Continue

Question 34 of 150
A 28-year-old man with Kallmann's syndrome is treated with hCG and FSH injections over two years. His serum testosterone and FSH levels are normal. His semen volume is 1.0 ml, sperm count is six million sperm/ml, and sperm motility is 90%. Well-timed sexual intercourse has not resulted in pregnancy for his wife, whose evaluation is normal. The next step is:

A: intrauterine insemination.
B: color Doppler scrotal ultrasound.
C: ICSI.
D: transrectal ultrasound.
E: testis biopsy.

A: "intrauterine insemination." is correct.

Intrauterine insemination (IUI) is a highly effective treatment for men with normal semen parameters, especially normal sperm motility. IUI involves placing processed sperm via a catheter inserted through the cervix into the uterine cavity. This bypasses cervical mucous and higher numbers of motile sperm will be able to reach the fallopian tubes. Semen volume and sperm production is limited in men with Kallman's syndrome, because prostate, seminal vesicle and testicular size are affected. However, sperm quality tends to be completely normal. In vitro fertilization is not required at this point, and ICSI is unnecessary. Testis biopsy will not be helpful since the patient is not azoospermic. TRUS is useful to evaluate ejaculatory duct obstruction which is usually associated with azoospermia. It is not associated with Kallmann's syndrome.

Sigman M, Jarow JP: Male infertility, in Wein AJ, Kavoussi LR, Novick AC,

Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 19, pp 635-636, 651.

Question 35 of 150
The upper ureter is more susceptible to serious injury during endourological procedures because it:

A: is less distensible.
B: has thin suburothelium.
C: has thin muscularis.
D: has thin urothelium.
E: has variable blood supply.

C: "has thin muscularis." was the correct answer.

The ureteral wall consists of three different layers. However, the composition of these layers is not constant for the entire length of the ureter. The urothelium is four or five cell layers thick. Beneath the urothelium is a lamina propria with loose or dense connective tissue, but not a distinct structure. The muscularis varies in its composition over the course of the ureter. In the proximal ureter, it consists of a thin, poorly defined inner circular and an outer longitudinal layer. Both the mid and distal ureter have a muscularis which is distinctly composed of an inner longitudinal, middle circular, and outer longitudinal fibers. The deficiency in the muscularis of the upper ureter and the geometric arrangement of large areas of collagenous connective tissue interspacing the muscle bundles is thought to make the upper ureter more susceptible to serious ureteral injury.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 33.

Question 36 of 150
A 74-year-old man has a 2 cm lower pole renal mass that enhances on CT scan. His medical history includes hypertension, congestive heart failure, and renal insufficiency with a creatinine of 1.8 mg/dl. The next step is:

A: renal mass biopsy.
B: cryoablation.

C: radiofrequency ablation.
D: partial nephrectomy.
E: radical nephrectomy.

A: "renal mass biopsy." was the correct answer.

Renal mass biopsy should now be considered in select patients with small renal masses to help stratify oncologic risk and offer the optimal treatment intervention. Most studies suggest that biopsy has an accuracy of over 90% in distinguishing benign vs. malignant histology and an associated 70-80% accuracy in assessing tumor histology and grade. Needle tract seeding is exceedingly rare. This patient has comorbidities that might encourage surveillance of his small renal mass, but a minimally invasive treatment would also be appropriate for an aggressive histology given the favorable tumor size and location. Knowing the histology could assist in counseling this patient, particularly since ~20% of small renal masses are benign. Radical nephrectomy would be inappropriate in treating a small exophytic lesion in a patient with renal insufficiency. Given the patient comorbidity and the potential morbidity of partial nephrectomy, a less invasive approach is favored in this setting. This patient is also a reasonable candidate for observation.

Lane BR, Campbell SC: Management of small renal masses. AUA UPDATE SERIES 2009, vol 28, lesson 34, pp 314-317.

Novick AC, Campbell, SC, Belldegrun A, et al: Guideline for management of the clinical stage 1 renal mass. MANAGEMENT OF THE CLINICAL STAGE 1 RENAL MASS GUIDELINE. Urological Association Education and Research, Inc, 2009.

Question 37 of 150
An 82-year-old woman living in a nursing home has urinary urgency and urge incontinence. Neurologic examination is normal. Urinalysis is normal. Residual urine is 140 ml after voiding 160 ml. The most likely etiology of her symptoms is:

A: detrusor overactivity.
B: detrusor sphincter dyssynergia.

C: decreased detrusor compliance.
D: detrusor overactivity with impaired contractility.
E: intrinsic sphincter deficiency.

D: "detrusor overactivity with impaired contractility." is correct.

Detrusor overactivity with impaired contractility is the most common cause of urinary incontinence in the frail elderly and presents as urge incontinence or unspecified incontinence with large postvoid residual urine. Detrusor-sphincter dyssynergia is only seen in patients with neurologic disorders. Patients with intrinsic sphincter deficiency complain of stress incontinence. She has no risk factors for decreased bladder compliance.

Resnick NM, Yalla SV: Geriatric incontinence and voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 71, pp 2310-2311.

Question 38 of 150
A 28-year-old woman in her third trimester of pregnancy has a cervical culture positive for Neisseria gonorrhoeae. She developed a skin rash and urticaria after taking penicillin previously. A skin test for penicillin allergy is negative. The most appropriate treatment is:

A: procaine penicillin G.
B: tetracycline.
C: erythromycin.
D: ceftriaxone.
E: spectinomycin.

D: "ceftriaxone." was the correct answer.

Ceftriaxone is the drug of choice for Neisseria urethritis and cervicitis. It is safe to administer during pregnancy. Tetracycline and spectinomycin should be avoided. Although erythromycin may be given, it is not the preferred antibiotic in this situation. The decision to administer penicillin to a patient with a history of allergy is dependent on the severity of the reaction and the availability of alternative drugs. Only one-fourth of those with a history of allergic reactions to penicillin have an

adverse effect when re-challenged with the drug. Desensitization techniques may be of value to those with a history of major allergic reaction and where there is a strong need to give the drug. Ceftriaxone can be administered to women in their 3rd trimester.

MMWR, Sexually Transmitted Diseases Treatment Guidelines, 2006. August 4, 2006 / 55 (RR11); Gonococcal infections.

Question 39 of 150
The maximum yearly whole-body exposure to radiation recommended by the National Council on Radiation Protection is:

A: 1 rem.
B: 5 rem.
C: 10 rem.
D: 50 rem.
E: 100 rem.

B: "5 rem." was the correct answer.

Urologists may have significant occupational radiation exposure. It is important to wear radiation protection for the body, thyroid and eyes. Place the fluoroscopy beam under the table if possible and use the principle ALARA or "as low as reasonably achievable". The maximum yearly dose recommended by the National Council on Radiation Protection is 5000 mrem or 5 rem.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1534.

Question 40 of 150
Administration of I.V. mannitol prior to renal artery occlusion for partial nephrectomy helps prevent tissue damage by:

A: increasing cellular pH.
B: preventing cellular edema.
C: inhibition of Na/K ATPase.
D: preventing lactic acidosis.

E: limiting intracellular calcium influx.
B: "preventing cellular edema." was the correct answer.

Renal ischemia will deplete ATP energy stores, decreasing activity of active transport via Na+/K+ and Ca++/Mg++ ATPases. As a result, intracellular influx of Na+, Ca++, Cl- and water occur. The influx of water causes cellular swelling and tissue damage. The use of solutions containing impermeable solutes, such as mannitol, help reduce cellular edema. Additionally, mannitol infusion results in improved renal hemodynamics and an osmotic diuresis.

Beri A, Lattouf JB, Deambros O, et al: Partial nephrectomy using renal artery perfusion for cold ischemia: functional and oncologic outcomes. J ENDOUROL 2008;22(6):1285-1290.

Question 41 of 150
A 40-year-old man underwent a vasectomy ten years earlier. He undergoes vasoepididymostomy, and sperm are noted in the epididymis. Six months after this procedure, semen analysis reveals azoospermia. The next step is:

A: repeat vasoepididymostomy.
B: epididymal sperm aspiration and ICSI.
C: testis biopsy.
D: repeat semen analysis in three months.
E: donor insemination.

D: "repeat semen analysis in three months." was the correct answer.

Delayed return of sperm in the ejaculate may occur after vasoepididymostomy. Men without sperm in the epididymal fluid at the time of the anastomosis will never recover sperm in the ejaculate. Forty-one percent of patients will have delayed appearance of sperm in the ejaculate which can take up to one year or longer. The ultimate mean sperm count will be similar in those with immediate and delayed return of sperm. Delayed anastomotic obstruction is also the same in both groups.

Yang G, Walsh TJ, Shefi S, Turek PJ: The kinetics of the return of motile sperm to the ejaculate after vasectomy reversal. J UROL 2007;177:2272-2276.

Jarow JP, Sigman M, Buch JP, Oates RD: Delayed appearance of sperm after end-to-side vasoepididymostomy. J UROL 1995;153:1156.

Question 42 of 150
During a left laparoscopic pyeloplasty the inferior mesenteric artery is accidentally ligated. Blood supply to the left colon will be primarily maintained by:

A: left colic artery.
B: left colic artery and inferior hemorrhoidal arteries.
C: middle colic artery and superior hemorrhoidal arteries.
D: marginal artery and superior hemorrhoidal arteries.
E: middle colic and middle hemorrhoidal arteries.

E: "middle colic and middle hemorrhoidal arteries." was the correct answer.

The inferior mesenteric artery supplies the main blood supply to the left colon via the left colic artery and superior hemorrhoidal arteries. When this is injured or ligated, blood supply is maintained proximally via the middle colic artery which is a branch of the superior mesenteric artery and distally via the middle and inferior hemorrhoidal arteries. The middle colic and hemorrhoidal arteries connect with each other via the marginal artery of Drummond. This artery runs parallel to the wall of the colon. It is important to maintain this artery during any dissection of the left colon in cases where injury to the inferior mesenteric artery may occur.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 13.

Question 43 of 150
Compared to primary penile prosthesis insertion, prosthesis revision is associated with an increased risk of:

A: infection.
B: mechanical failure.
C: erosion.
D: persistent penile pain.

E: hemorrhage.

A: "infection." was the correct answer.

Overall infection rates following initial penile prosthesis insertion range from 1 to 3%. This rate is considerably higher for revision surgery (7-18%). Antibiotic impregnation of prostheses components has reduced the risk of infection. Risk of mechanical failure, erosion, penile pain, and hemorrhage are not higher after repeat prosthesis insertion. Loss of penile size has been associated with delayed reimplantation, and so early replacement has been advocated for patients considering replacement.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, pp 795-796.

Question 44 of 150
A 62-year-old man undergoes a TURBT at the dome. Final pathology reveals muscle-invasive small cell carcinoma. Metastatic work-up is negative. The next step is:

A: restaging TURBT.
B: neoadjuvant cisplatin-based chemotherapy.
C: XRT.
D: partial cystectomy.
E: radical cystoprostatectomy.

B: "neoadjuvant cisplatin-based chemotherapy." is correct.

Small cell carcinoma of the bladder is a relatively rare tumor of the bladder that may arise in combination with urothelial carcinoma. It is usually biologically aggressive with early vascular and muscular invasion. These malignancies usually respond to, but are not cured by, cisplatin-based chemotherapy regimens. Neither partial cystectomy nor intravesical chemotherapy is appropriate in this setting. Radiation or extirpative surgery alone may result in cure rates of 5 to 20%. However, neoadjuvant chemotherapy followed by surgery or radiation therapy results in cure rates of 40 to 65%. Therefore, the best treatment is cisplatin-based chemotherapy followed by an aggressive local treatment such as surgery or

radiation if the patient does not progress.

Messing EM: Urothelial tumors of the bladder, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 75, p 2444.

Continue

Question 45 of 150
Beta-lactamase inhibitors are useful for treating UTIs because they:

A: enhance entry of a second antimicrobial agent into bacteria.
B: protect a penicillinase-susceptible agent from hydrolysis.
C: are bactericidal.
D: are active against methicillin-resistant staphylococcus.
E: antagonize the bactericidal effect of penicillin-like drugs.

B: "protect a penicillinase-susceptible agent from hydrolysis." was the correct answer.

Bacteria that make beta-lactamase (penicillinase) are resistant to penicillin because the beta-lactamase hydrolyzes the penicillin. The beta-lactamase inhibitors bind to beta-lactamase to make it unavailable for causing enzymatic hydrolysis of penicillinase-susceptible penicillin. In this way, clavulanic acid and sulbactam, inhibitors of microbial beta-lactamases, will allow hydrolysable penicillins to continue to be active against resistant organisms. These inhibitors do not enhance drug entry into bacteria, nor are they active against the bacteria on their own. They are used in combination with a penicillin-like antimicrobial agent such as: ticarcillin-clavulanic acid (Timentin), ampicillin-sulbactam (Unasyn), amoxicillin-clavulanic acid (Augmentin). Methicillin itself is a penicillinase-resistant penicillin, and as such the addition of a beta-lactamase inhibitor is not useful in treating bacteria already resistant to methicillin.

Jacoby GA, Munoz-Price LS: The new beta-lactamases. NEJM 2005;352:380-391.

Continue

Question 46 of 150
A 50-year-old man has a two year history of erectile dysfunction, urinary frequency, nocturia, and recurrent UTIs. Physical examination reveals an absent bulbocavernosus reflex and an enlarged prostate. Neurologic evaluation reveals decreased vibratory sensation in his hands and feet. A CMG shows 200 ml residual urine and first sensation at 400 ml. These findings are most consistent with:

A: multiple sclerosis.
B: Shy-Drager syndrome.
C: Parkinson's disease.
D: herpes zoster.
E: diabetes mellitus.
E: "diabetes mellitus." was the correct answer.

The decrease in vibratory sensation of the hands and feet, a delayed first sensation at 400 ml on a CMG, and increased residual urine all favor the diagnosis of diabetic cystopathy. Urinary frequency and nocturia may also be due to an osmotic diuresis. The absent bulbocavernosus reflex is unusual but can occur in normal men. Good sphincter tone and voluntary sphincter contraction would suggest there is no abnormality in the sacral reflex. The findings presented are more consistent with undiagnosed diabetes mellitus. These urodynamic findings are not typical for Parkinson's disease which is usually detrusor overactivity and impaired contractility. In contrast, Shy-Drager syndrome would have detrusor overactivity, open bladder neck, and denervation of the external sphincter. Herpes zoster tends to have cutaneous lesions and exhibit a dermatomal pattern, not a symmetrical neuropathy as described in this scenario.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2033-2034.

Appell R, Whiteside H: Diabetes and other peripheral neuropathies affecting lower urinary tract function, in Krane RJ, Siroky MB (eds): CLINICAL NEURO-UROLOGY. Boston, Little Brown and Co, 1991, pp 365-373.

Question 47 of 150
A 30-year-old woman sustains a complete transection of the left ureter at the level of L5 during removal of a large ovarian cyst. Preoperative CT scan was within normal limits. The most appropriate treatment is:

A: transureteroureterostomy.
B: ureteroureterostomy.
C: nephrostomy and delayed ureteral repair.
D: psoas hitch and ureteroneocystostomy.
E: Boari flap and ureteroneocystostomy.

B: "ureteroureterostomy." was the correct answer.

Hysterectomy is responsible for the majority (54%) of surgical ureteral injuries. Next most common was colorectal surgery (14%), followed by pelvic surgery such as ovarian tumor removal and transabdominal urethropexy (8%), followed lastly by abdominal vascular surgery (6%). Ureteroureterostomy, or so-called end-to-end repair, is used in injuries to the upper two thirds of the ureter. It is required commonly, up to 32% of the time in large series. Simple transection of the ureter at the L5 level can be easily managed by spatulating each end of the ureter and performing an elliptical anastomosis over a stent. Transureteroureterostomy could potentially compromise the contralateral ureter. In the absence of life threatening bleeding or other traumatic injuries, injuries recognized intraoperatively should be repaired immediately; delayed repair is thus inappropriate. Psoas hitch should be reserved for defects of the distal ureter; Boari flaps are only necessary when larger defects of the distal and mid ureter preclude simpler reconstructive approaches.

McAninch W, Santucci RA: Renal and ureteral trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 39, p 1278.

Question 48 of 150
A 65-year-old man undergoes a radical cystectomy with ileal neobladder reconstruction. On post-op day three, he has a mild abdominal distention and increased bilious output from his nasogastric tube. His urine output is slightly diminished but adequate. He is hemodynamically stable. His maintenance fluid is 0.45 NS at 85 cc/hr. His nasogastric tube output should be replaced with:

A: 0.45 NS.
B: 0.45 NS with 20 mEq/l KCl.
C: 0.45 NS with 30 mEq/l KCl.

D: 0.9 NS with 20 mEq/l KCl.
E: Lactated Ringer's.

E: "Lactated Ringer's." was the correct answer.

This patient has a post-op ileus in which there will be increased fluid losses of isotonic fluid into the bowel lumen. The presence of bilious output is indicative of the ileus and the associated loss of fluids and secretions (including pancreatic) into the bowel lumen. When a post-op ileus occurs, these insensible losses need to be replaced early on in the process to prevent dehydration and secondary vascular compromise. This is best accomplished with a fluid that is isotonic like Lactated Ringer's that also provides replacement with approriate levels of potassium, chloride, and bicarbonate. Saline with KCl supplementation would be more appropriate for replacement of gastric secretions.

Evers BM: Small bowel, in Townsend CM Jr, Beauchamp RD, Evers BM, Mattox, KL (eds): TOWNSEND: SABISTON TEXTBOOK OF SURGERY, ed 18. Philadelphia, Saunders Elsevier, 2007, pp 132-134.

Question 49 of 150
A 63-year-old man has a temperature of 39°C and fecaluria eight days after radical prostatectomy. A pelvic CT scan demonstrates a 5 by 4 cm heterogeneous peri-rectal fluid collection. He had received an oral bowel prep and antibiotics pre-operatively. The best management is parenteral antibiotics, percutaneous drainage of the fluid collection, and:

A: low-residual diet.
B: parenteral hyperalimentation.
C: suprapubic tube.
D: colostomy.
E: enteral hyperalimentation.

D: "colostomy." is correct.

Rectal injury occurs in approximately 1.5% of patients undergoing radical prostatectomy. If the injury is recognized intraoperatively and the patient has received an appropriate combination bowel prep, the injury can be repaired primarily. If the rectal injury is recognized post-operatively as a vesicorectal fistula, conservative management is not indicated. In this case, the patient also has associated infection and therefore a colostomy with delayed primary repair is

indicated. In the face of a large fluid collection and active infection, less aggressive approaches are not indicated.

Harpster LE, Rommel FM, Sieber PR, et al: The incidence and management of rectal injury associated with radical prostatectomy in a community based urology practice. J UROL 1995;154:1435-1438.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2355.

Continue

Question 50 of 150
A 30-year-old woman complains of a vaginal discharge and odor. She has no itching, burning, or soreness. On physical examination, she has a malodorous, gray-yellow discharge. Microscopic examination of the discharge shows clue cells. A whiff test is positive. The etiology her vaginitis is:

A: Candida albicans.
B: Gardnerella vaginalis.
C: Trichomonas vaginalis.
D: Chlamydia trachomatis.
E: mucorrhea.

: "Gardnerella vaginalis." is correct.

The presence of clue cells (vaginal epithelial cells whose borders are obscured by bacteria) and a positive whiff test (fish odor after adding potassium hydroxide to the discharge) are diagnostic of a Gardnerella vaginalis infection. The organism is not a tissue pathogen, so local symptoms are absent. Treatment with oral metronidazole is the standard. New molecular techniques have identified a biofilm containing mostly Gardnerella and Atopobium vaginae, which can persist after treatment; thus suppressive treatment with metronidazole gel can prevent recurrence. Candida vaginitis and Trichomonas vaginalis are diagnosed by finding the organisms that cause these infections on microscopic examination. Chlamydia causes a cervicitis, and mucorrhea (a clear or cloudy discharge) is normal.

Hay P: Recurrent bacterial vaginosis. CURR DIS OPIN INFECT DIS 2009;22:82-86.

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Question 51 of 150
The most likely neurologic deficit following nerve injury at the time of laparoscopic varicocelectomy is:

A: numbness on the base of the penis and anterior scrotum.
B: numbness on the anterior thigh.
C: numbness on the lateral thigh.
D: inability to extend the knee.
E: inability to adduct the thigh.

B: "numbness on the anterior thigh." was the correct answer.

Laparoscopic varicocelectomy is a minimally invasive option for management of varicoceles. The genitofemoral nerve lies directly atop the psoas muscle. Approximately 4-5 % of patients undergoing laparoscopic varicocelectomy will complain of either temporary or permanent alterations in the sensory innervation of the anterior thigh consistent with injury to the genitofemoral nerve. The genitofemoral nerve arises from L1-L2, emerges from the psoas, passes posterior to the ureter and divides into the genital and femoral branches above the inguinal ligament. The femoral branch then passes behind the inguinal ligament and enters the femoral sheath. The genital branch enters the inguinal canal close to the internal inguinal ring to supply the cremaster muscle and the scrotal skin. The ilioinguinal nerve (numbness on the base of the penis and anterior scrotum) and lateral femoral cutaneous nerve (numbness on the lateral thigh) run at least 3 cm lateral to the internal ring and, therefore, should be at little risk during routine laparoscopic varicocelectomy. The obturator nerve (inability to adduct the thigh) is medial and caudal to the iliac vessels and should not be injured during varicocelectomy. The femoral nerve (inability to extend the knee) is deep in the psoas muscle. It can be injured during open surgery with retraction but injury is unlikely during laparoscopy.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW,

Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 17

Question 52 of 150
A 54-year-old woman underwent radiation therapy for cervical cancer two years ago now has microscopic hematuria. TUR of a lesion 2 cm above the left ureteral orifice reveals an inverted papilloma. Three days post-operatively, she develops a vesicovaginal fistula. The best treatment is:

A: immediate transvaginal repair.
B: transvaginal repair in six months.
C: immediate transabdominal repair.
D: transabdominal repair in six months.
E: urinary diversion.

C: "immediate transabdominal repair." was the correct answer.

In a woman with no evidence of abscess formation or a fluid collection, there is little need to wait an extended period of time before fistula repair. The abdominal approach provides better access to a radiation induced fistula and allows an omental pedicle flap to be interposed between the bladder and vaginal wall. Obliteration of dead space, good bladder drainage, control of infection and interposition of healthy tissue are critical elements to fistula closure.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2330-2331.

Question 53 of 150
Primary hyperaldosteronism caused by bilateral adrenal hyperplasia is best managed by:

A: salt restriction.
B: spironolactone administration.
C: captopril administration.
D: unilateral adrenalectomy of the larger adrenal.
E: bilateral adrenalectomy.

B: "spironolactone administration." is correct.

Patients with bilateral adrenal hyperplasia are best treated medically. Bilateral adrenalectomy will sacrifice glucocorticoid and mineralocorticoid function. Moreover, either partial or unilateral adrenalectomy will not correct the hypertension accompanying this disorder. While patients become hypokalemic with hyperaldosteronism, neither potassium supplementation nor salt restriction will correct the etiology of the hypertension. Captopril may be indicated in a subset of primary hyperaldosteronism patients in whom aldosterone production is not completely autonomous from angiotensin II stimulation.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1856.

Question 54 of 150
A six-year-old boy has a history of a PUV treated with endoscopic resection. He now has worsening bilateral hydronephrosis and his serum creatinine has increased from 0.6 to 1.0 mg/dl over the past nine months. He is dry and has no voiding complaints. Videourodynamics reveal no reflux, near complete emptying without outflow obstruction and filling pressures of 20 cm H_2O at 220 ml and 32 cm H_2O at 280 ml. The initial plan should be:

A: voiding diary.
B: start oxybutynin.
C: start alpha-blocker.
D: nocturnal indwelling catheter.
E: initiate CIC every four hours.

A: "voiding diary." was the correct answer.

Children with correction of severe obstructive uropathy will sometimes demonstrate a persistent decrease in renal concentrating ability. This tends to worsen with growth and may lead to very high obligate urine output. This output can, at times, be so high that children cannot void frequently enough to maintain safe intravesical pressures; hydronephrosis and rising creatinine will ensue. This boy appears to void without obstruction. He does have reduced bladder compliance (as many valve patients do), but his pressures only reach 32 cm H_2O by 280 ml -

which should be an average six-year-old bladder capacity. However, if his urine output is very high, then he will reach this capacity very quickly after voiding. While he may eventually need timed voiding, antimuscarinic medication, CIC, or use of a nocturnal indwelling catheter, none of them can be used in a logical way without first knowing more about the patient's daily urine output volume. An alpha-blocker is not indicated in this patient.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, pp 3586-3587.

Question 55 of 150
A 42-year-old woman has a slow rise in serum creatinine from 1.2 to 2.0 mg/dl one year after uneventful live donor transplantation. Ultrasound shows significant hydronephrosis and no perinephric fluid collection. The next step is:

A: CT scan.
B: MAG-3 renal scan.
C: VCUG.
D: retrograde ureterogram.
E: renal allograft biopsy.

C: "VCUG." is correct.

The absence of a perinephric fluid collection and late presentation of hydronephrosis accompanied by slowly declining renal function suggests the possibility of significant reflux into the transplant ureter. The most appropriate initial diagnostic study is a voiding cystourethrogram. Although a CT scan of the abdomen and pelvis can demonstrate the anatomy to a better degree than the ultrasound, the findings here with additional definition does not help with diagnosing the rise in creatinine. If a VCUG shows no reflux, a diuretic MAG-3 renal scan would be done to quantify any degree of obstruction at the ureterovesical junction where the anastomosis was performed. A retrograde ureterogram would be helpful but that is a diagnostic procedure that requires anesthesia and also the location of the ureteroneocystostomy is difficult to cannulate especially in the suspicion of ureteric complications such as stenosis. Renal allograft biopsy is not indicated as the first step in an ultrasound finding of

significant hydronephrosis. The likelihood of long-term ureteric stenosis is 5-8%, whereas the likelihood of reflux exceeds 50% in the post-transplant population.

Naraghi RM, Jordan ML: Surgical complications of renal transplantation, in Shapiro R, Simmons RL, Starzl TE (eds): RENAL TRANSPLANTATION. Stamford, Appleton and Lange, 1997, pp 269-297.

Barry JM, Jordan ML, Conlin, MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1321.

Valentini AL, De Gaetano AM, Minordi LM, et al: Contrast-enhanced voiding US for grading of reflux in adult patients prior to antireflux ureteral implantation. RAD 2004:233:35-39.

Question 56 of 150
The urine sample that should be collected for pH testing to establish the diagnosis of RTA is:

A: fasting.
B: postprandial.
C: diurnal.
D: nocturnal.
E: hydrated.

A: "fasting." was the correct answer.

Distal RTA (Type I) is commonly associated with urinary calculi, primarily calcium phosphate stones. The hallmark of RTA is an inability to acidify the urine. Initial screening for RTA can be done by measuring the pH of the second voided morning urine specimen after the patient has fasted overnight. The second voided specimen is better than the first because the first voided specimen may have an elevated pH as a result of pre-fasting food intake.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1403.

Question 57 of 150
A six-year-old girl has a palpable abdominal mass. CT scan demonstrates a 5 cm mass in the lower pole of the left kidney and a 2 cm lesion in the upper pole of the right kidney. Biopsy of the left renal mass shows Wilms' tumor. The next step is:

A: chemotherapy.
B: chemotherapy and XRT.
C: bilateral partial nephrectomies.
D: left radical nephrectomy and right partial nephrectomy.
E: left radical nephrectomy and chemotherapy.

A: "chemotherapy." was the correct answer.

There is current controversy as to whether patients with Wilms' tumor should undergo primary surgical exploration or initial pre-operative chemotherapy. However, there is general consensus that there are several instances when surgical therapy should not be undertaken, other than biopsy. This includes vena caval extension of the tumor above the hepatic veins, inoperable tumor, and bilateral disease. Bilateral disease is seen in about 5% of cases. In these cases, therapy is directed towards preservation of renal tissue since there is high incidence of renal failure, especially when a primary nephrectomy is undertaken. Thus, primary chemotherapy is indicated in patients with bilateral disease with a subsequent surgical exploration following completion of the first course of chemotherapy.

Ritchey ML, Ferrer FA: Wilms' tumor, Docimo SG, Canning DA, Khoury AE (eds): CLINICAL PEDIATRIC UROLOGY, ed 5. London, Informa Healthcare, 2007, p 507.

Question 58 of 150
A 28-year-old paraplegic man had a sphincterotomy seven years ago and wears a condom catheter. During an evaluation for renal insufficiency, renal ultrasonography reveals bilateral hydroureteronephrosis. The parameter or study most predictive of this complication is:

A: EMG.
B: CMG.
C: Valsalva LPP.

D: detrusor LPP.
E: urethral pressure profilometry.

D: "detrusor LPP." is correct.

Detrusor LPP is the most reliable urodynamic parameter to predict the risk of upper tract deterioration after sphincterotomy. A detrusor LPP of higher than 40 cm H_2O indicates that the sphincterotomy has failed, and may serve as a guide to determine whether a repeat sphincterotomy is necessary. Abnormal compliance, which may be detected on CMG, may also be a worrisome finding, but there is much less established predictive value. To date, there is no correlation of urethral function tests (urethral pressure profile, Valsalva LPP, EMG) to upper tract deterioration.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, pp 2302-2303

Question 59 of 150
An oligospermic man who takes 25 mg of clomiphene citrate a day will usually have a:

A: low serum LH.
B: low serum FSH.
C: low serum estradiol.
D: high serum testosterone.
E: high prolactin.

D: "high serum testosterone." was the correct answer.

Clomiphene citrate is an antiestrogen that blocks the negative feedback of estrogen on the hypothalmus and pituitary. It will raise the serum FSH, LH, and testosterone. Estradiol may also rise because of peripheral conversion of testosterone through the action of aromatase. When used for idiopathic oligospermia, the majority of (but not all) controlled studies show no effect on

pregnancy rates. Clomiphene citrate does not affect prolactin levels.

Sigman M, Jarow JP: Male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 19, p 646.

Question 60 of 150
An eight-year-old girl has urinary urgency, urge incontinence, and constant leakage of urine between voids. She is started on timed voiding and has improvement with the urge incontinence but still has constant urinary leakage. An ultrasound does not show any evidence of hydronephrosis or bladder wall thickening. The next study that will most definitively diagnose her problem is:

A: MRI scan of the abdomen.
B: MRI scan of the spine.
C: VCUG.
D: videourodynamics.
E: MAG-3 renal scan.

A: "MRI scan of the abdomen." was the correct answer.

The clinical history strongly suggests that this girl has an ectopic ureter even though the ultrasound does not show evidence of this. The absence of an abnormality on ultrasound does not rule out an ectopic ureter. Occasionally, the renal parenchyma from the upper pole of the kidney that is associated with the ectopic ureter is difficult to locate and may be identified only by alternative imaging studies. In cases in which an ectopic ureter is strongly suspected because of incontinence yet no definite evidence of the upper pole renal segment is found, magnetic resonance imaging (MRI or CT scanning) will likely demonstrate the small, poorly functioning upper pole segment and ureter. None of the other options will adequately visualize the ectopic ureter.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, pp 3383, 3393.

Question 61 of 150
Stage III prolapse in the Pelvic Organ Prolapse Quantification (POPQ) system occurs when the most distal portion of the prolapse is:

A: 1 cm or less proximal or distal to the hymenal plane.
B: 1 cm or less proximal or distal to the introitus.
C: > 1 cm below the hymen; entire vagina has not prolapsed.
D: > 1 cm below the introitus; entire vagina has not prolapsed.
E: associated with complete vaginal eversion.

C: "> 1 cm below the hymen; entire vagina has not prolapsed." is correct.

The International Continence Society has established a standardized system to quantify pelvic organ prolapse, this classification is known as the POPQ system an acronym that is short for pelvic organ prolapsed quantification. The system uses the hymenal ring as its central identification point, the hymen was chosen over the vaginal introitus because it can be more precisely located within the vaginal vault, all measurements are based from this location. This classification avoids the use of the terms cystocele or rectocele, recognizing that the actual organ prolapsing may be unable to be determined by a physical examination. The examination to determine POPQ stage is performed in a dorsal lithotomy position with the patient straining. The POPQ staging system has excellent inter-observer and intra-observer reliability and has become the standard for reporting outcomes following prolapsed repair. The staging system is however not perfect and can be significantly affected by patient positioning, with the degree of the prolapsed being more severe if the patient is examined with the head of the table raised to 45 degrees or higher. In addition, it fails to assess for unilateral or asymmetric defects. The POPQ staging systems is defined as: Stage 0 - no prolapsed Stage I - the most distal portion of the prolapse is more than 1 cm above the hymen. Stage II - the most distal portion of the prolapse is +/-1 cm above or below the hymen. Stage III - the most distal portion of the prolapsed protrudes > 1 cm below the hymen and the total vagina has not prolapsed. Stage IV - the entire vagina everts-complete prolapse.

Herschorn S: Vaginal reconstructive surgery for sphincteric incontinence and prolapse, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 66, pp 2207-2209.

Question 62 of 150

A 45-year-old man with congestive heart failure develops epididymitis. His current medications include digoxin, enalapril and amiodarone. The next step in management is:

A: administer ciprofloxacin.
B: discontinue enalapril.
C: discontinue amiodarone.
D: discontinue digoxin.
E: administer doxycycline.

C: "discontinue amiodarone." is correct.

The incidence of epididymitis during amiodarone therapy is reported to be as high as 11%. Epididymitis usually resolves with discontinuation of this medication, which should be done under the supervision of the treating cardiologist. Dose reductions of amiodarone may also improve symptoms. This condition has been associated with high serum or epididymal levels of amiodarone or its metabolites. The development of anti-amiodarone antibodies may play a role in the pathophysiology of this disorder. Lymphocytic infiltration and fibrosis of the epididymis are seen on histologic analysis. There is no bacterial etiology and thus antibiotics are not indicated.

Tracy CR, Steers WD, Costabile R: Diagnosis and management of epididymitis. UROL CLIN N AM 2008;35:101-108.

http://www.urologyhealth.org/search/index.cfm?topic=490 accession date 6/25/2010.

Nikolaou M, Ikonomidis I, Lekakis I, et al: Amiodarone-induced epididymitis: A case report and review of the literature. INT J CARDIO 2007;121:15-16. Epub 2007 Aug 10.

Gabal-Shehab LL, Monga M: Recurrent bilateral amiodarone induced epididymitis. J UROL 1999;161:921.

Question 63 of 150

A 40-year-old woman has chronic renal insufficiency and a creatinine of 2.5 mg/dl. The medication that will increase the serum creatinine but not alter the true GFR is:

A: captopril.
B: cimetidine.
C: trimethoprim.
D: spironolactone.
E: cisplatin.

C: "trimethoprim." is correct.

Endogenous creatinine and creatinine clearance is the most widely used surrogate for GFR. In the presence of normal renal function, 90% of creatinine is filtered and 10% is secreted by the proximal tubules. As GFR declines, tubular secretion may contribute up to 35% of all creatinine removal at levels of 40-80 ml/min. The commonly utilized antibiotic trimethoprim blocks the tubular secretion of creatinine. Since creatinine is produced at a steady state, the serum creatinine will rise but the GFR does not change. Captopril and spironolactone might alter renal perfusion causing a change in the GFR that leads to an altered creatinine level. Cisplatin has a direct nephrotoxic effect but would not raise creatinine without altering GFR.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1132-1133.

Question 64 of 150
A 32-year old spinal cord injured man undergoes cystoscopy using local anesthesia and I.V. sedation. The symptom complex most indicative of autonomic dysreflexia is:

A: hypertension, bradycardia, facial flushing.
B: hypertension, tachycardia, diaphoresis.
C: hypertension, tachycardia, facial flushing.
D: hypotension, bradycardia, pallor.
E: hypotension, tachycardia, diaphoresis.

A: "hypertension, bradycardia, facial flushing." was the correct answer.

Autonomic dysreflexia is a potentially life-threatening condition seen in patients with spinal cord injury above the T6 spinal level. It is precipitated by a variety of stimuli although for the practicing urologist it is most commonly seen during procedures that result in bladder or bowel distension. Afferent stimuli arising below the T6 spinal level leads to massive reflexive sympathetic discharge from thoracolumbar levels with inability of hypothalamic inhibition due to the spinal cord disruption. This leads to hypertension associated with headache, facial flushing and diaphoresis. Reflex bradycardia occurs secondary to carotid body stimulation by the hypertension. Tachycardia and hypotension are not associated with autonomic dysreflexia. The initial treatment should be to remove the noxious stimuli. Thus prompt bladder drainage and cessation of the procedure should occur.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2026.

Question 65 of 150
A 42-year-old man with azoospermia and primary infertility has an FSH of 15 IU/l, small volume testes, and an otherwise normal physical examination. The factor that most reliability predicts his ability to have a biologic child is:

A: vasography.
B: serum FSH.
C: wife's fertility.
D: testicular volume.
E: testicular biopsy.

C: "wife's fertility." was the correct answer.

The presence of small volume testes with an elevated FSH suggests the presence of non-obstructive azoospermia. Most men with non-obstructive azoospermia will have sperm retrievable from the testes that can be used in conjunction with in vitro fertilization for the wife. The most important characteristic to determine eligibility for treatment will be the wife's age and fertility. Screening for obstruction (with vasography) is not of value.

Carpi A, Sabanegh E, Mechanick J: Controversies in the management of nonobstructive azoospermia. FERT STERIL 2009;91:963-970. Epub 2009 Mar 21.

Devroey P, Liu J, Nagy Z, et al: Pregnancies after testicular sperm extraction and intracytoplasmic sperm injection in non-obstructive azoospermia. HUM REPROD 1995;10:1457-1460.

Question 66 of 150
A 25-year-old man had an ileal bladder augmentation at age six years. He now has anorexia, weight loss, polydipsia, and lethargy. Serum electrolyte results are: sodium 136 mEq/l, potassium 4.2 mEq/l, chloride 114 mEq/l, and bicarbonate 14 mEq/l. The next steps are hydration and:

A: chlorpromazine.
B: potassium citrate.
C: sodium chloride.
D: cimetidine.
E: omeprazole.

B: "potassium citrate." was the correct answer.

The treatment of hyperchloremic metabolic acidosis involves administering alkalinizing agents or blockers of chloride transport. Alkalinization with oral sodium bicarbonate is effective in restoring normal acid-base balance if it is tolerated. Sodium citrate and citric acid solution (Bicitra or Shohl's solution) used together is an effective alternative; however, many patients do not care for the taste. Potassium citrate, sodium citrate, and citric acid solution (Polycitra) may be used instead if excessive sodium administration is a problem because of cardiac or renal disease and if potassium supplementation is desirable or at least not harmful. In those patients in whom persistent hyperchloremic metabolic acidosis occurs and in whom excessive sodium loads are undesirable, chlorpromazine or nicotinic acid may be used to limit the degree of the acidosis. These agents used alone do not correct the acidosis, but they limit its development and thus reduce the need for alkalinizing agents. Chlorpromazine and nicotinic acid inhibit cAMP and thereby impede chloride transport, helping to minimize bicarbonate loss.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2570-2573.

Question 67 of 150
A 28-year-old woman with newly diagnosed hypertension has a 1.8 cm partially calcified right renal artery aneurysm. Appropriate long-term management is:

A: sodium restriction.
B: weight loss.
C: thiazide diuretic.
D: selective embolization.
E: surgical repair.

E: "surgical repair." was the correct answer.

Renal artery aneurysms are often associated with hypertension. Other symptoms may include flank pain and hematuria. When less than 1.5 cm in size, conservative management such as sodium restriction, weight loss and antihypertensives (thiazide diuretics) are indicated. Although rupture of renal artery aneurysms is uncommon, when it occurs during pregnancy, the results can be catastrophic. For this reason, it is recommended that renal artery aneurysms in women of child bearing age be surgically repaired. Fully calcified renal artery aneurysms tend to be stable and have negliable risk for rupture and would not require surgical intervention. Selective embolization will lead to loss of significant renal parenchyma.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1187.

Question 68 of 150
A promoter of urinary stone crystallization is:

A: glycosaminoglycans.
B: bikunin.
C: magnesium.
D: matrix.
E: pyrophosphate.

D: "matrix." was the correct answer.

Factors that determine kidney stone formation include supersaturation, inhibitors and promoters of crystallization, and intrarenal anatomy. Promoters are matrix and Tamm-Horsfall protein whereas inhibitors are citrate, magnesium, pyrophosphate, bikunin, glycosaminoglycans, and osteopontin.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, pp 1369-1371.

Question 69 of 150
A 15-year-old boy presents with a 22-caliber gunshot wound to the left flank. Evaluation reveals an entrance wound posterior to left anterior axillary line, no exit wound seen. Vital signs are stable and there is no sign of peritoneal irritation. CT scan reveals a grade 2 left renal injury, right kidney within normal limits, no air is noted in the peritoneal cavity; no associated organ injuries are noted. Distal ureters are intact bilaterally. The next step is initiate intravenous antibiotics and:

A: observation.
B: retrograde ureteropyelogram.
C: intravenous indigo carmine and local exploration of wound.
D: retroperitoneal exploration and renorrhaphy alone.
E: exploratory laparatomy, retroperitoneal exploration and renorrhaphy.

A: "observation." was the correct answer.

Approximately 10% of traumatic pediatric genitourinary injuries are due to penetrating trauma with gun shot wounds to the trunk causing a genitourinary injury approximately 15% of the time. In patients with GU trauma secondary to a gunshot wound, the kidney is the site of injury in approximately 60% of the patients, the bladder in 20%, the urethra in 5%, the ureter in 2%. Two or more genitourinary injuries occur in 13%. If a genitourinary structure is traumatically damaged due to a gunshot wound the likelihood of associated organ injury is approximately 90%. In most cases gunshot wounds to the abdomen will result in a hemodynamically unstable patient with multiple associated organ injuries, requiring urgent laparotomy. The need for emergent surgery excludes the ability to adequately stage the renal injury.

However, several studies have shown that a selective nonoperative approach to the management of patients with stab wounds and in very select cases, low velocity gun shot wounds, can be safely implemented. Specifically, in hemodynamically stable patients with a penetrating wound posterior to the anterior axillary line, intravenous antibiotics are initiated to cover the contamination induced by a penetrating foreign object. and a screening triphasic abdominal and pelvic CT scan is obtained. If the patient has an isolated grade 1 or 2 renal injury the vast majority of patients can be managed successfully with a non-operative approach with only minimal complications. In these patients surgical exploration is indicated for persistent blood loss, the presence of air in the peritoneum, signs of developing peritonitis, or radiographic findings consistent with a ureteral injury.

Velmahos G, Demetriades D: Is nonoperative management of abdominal gunshot wounds reasonable? ADV IN SUR 2002;36:123-140.

Heyns C: Renal trauma: Indications for imaging and surgical exploration. BR J UROL INT 2004;93:1165-1170.

Santucci R, Wessells H, Bartsch G, et al: Evaluation and management of renal injuries: Consensus statement of the renal trauma subcommittee. BR J UROL INT 2004;93:937-954.

Question 70 of 150
A 26-year-old man with neurofibromatosis develops hypertension two years after excision of a benign cerebellar hemangioma. The most likely cause is:

A: primary hyperaldosteronism.
B: adrenal cortical carcinoma.
C: renal artery stenosis.
D: juxtaglomerular cell tumor.
E: diabetes insipidus.

C: "renal artery stenosis." was the correct answer.

Neurofibromatosis type I or Von Recklinghausen Disease is diagnosed when a patient has two of any of the seven classic features:= 6 caf|eacute|-au-lait cutaneous pigmentation (approximately 100% of patients), excessive axillary or inguinal freckling, hamartomas of the iris, optic gliomas, neurofibromas, osseous bone lesions (sphenoid dysplasia that causes exophthalmous or cortical thinning of the long bones) or a family history of neurofibromatosis. Neurofibromatosis type II is

characterized when bilateral acoustic neuromas are found in conjunction with any two of the following findings, neurofibroma, CNS meningioma, schwannoma, glioma or optic lenticular opacities. Type II patients are more likely to have CNS tumors and < 50% have caf|eacute|-au-lait spots. Both types are transmitted in an autosomal dominant fashion; however type II usually will arise as a spontaneous mutation.

The most common cause of hypertension within patients with neurofibromatosis of either type is renal artery stenosis due to proliferation of neural tissue within the arterial wall resulting in intimal thickening and subsequently renal artery stenosis. On rare occasions, hypertension within this population may arise from a secondary pheochromocytoma, a tumor known to be associated with this disorder. Primary hyperaldosteronism results in hypertension due to the overproduction of the mineralocorticoid aldosterone and classically arises from one of two disorders, either bilateral idiopathic hyperaldosteronism or a aldosterone producing adenomas arising in the adrenal gland. A juxtaglomerular tumor also known as a reninoma is a rare solitary small (< 3 cm in size) hypovascular tumor. This tumor is usually benign and will found in the renal cortex usually in the hilar region. It will arise from endothelial cells of the juxtaglomerular apparatus and causes hypertension by excessive renin secretion. Diabetes insipidus occurs either as a central defect with inadequate secretion of pituitary vasopressin or when the kidney is resistant to vasopressin activity (nephrogenic diabetes insipidus). This defect will result in diuresis, hypernatremia, and hypotension due to volume loss. Neither primary hyperaldosteronism, adrenal cortical carcinoma, juxtaglomerular cell tumors nor diabetes insipidus are associated with neurofibromatosis.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1190-1191.

Question 71 of 150
Inhibin is a substance derived from the testicle which mediates secretion of:

A: testosterone.
B: FSH.
C: LH.
D: GnRH.
E: M|uulm|ccllerian inhibiting factor.

B: "FSH." is correct.

Inhibin is a heterodimeric protein hormone in the transforming growth factor family of protein hormones including activin. Inhibin is secreted by the Sertoli cell for normal feedback inhibition of FSH. Testosterone is regulated by LH. Secretion of both FSH and LH is stimulated by gonadotropin-releasing hormone from the hypothalamus. M|uulm|cllerian inhibiting factor is secreted by Sertoli cells during embryogenesis and inhibits the development of the M|uulm|llerian structures.

Schlegel PN, Hardy MP, Goldstein M: Male reproductive physiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 18, pp 577-578.

Question 72 of 150
A 15-year-old girl paraplegic athlete has qualified for the Para Olympics. Her overactive neurogenic bladder has been well-controlled with oxybutynin XL 10 mg bid. She has recently become intolerant of antimuscarinic medication due to severe heat intolerance induced with training. Without antimuscarinic medication, she has uncontrollable urinary incontinence. With the Olympics only seven weeks away, you recommend:

A: intravesical instillations of oxybuyinin.
B: intravesical instillation of resiniferatoxin.
C: intravesical injection of botulinum A toxin.
D: placement of a sacral nerve stimulator.
E: transcutaneous neural modulation.

C: "intravesical injection of botulinum A toxin." was the correct answer.

Approximately 30% of the patients treated with standard oxybutynin therapy and 15% using slow release formula will develop symptomatic complaints of dry mouth, constipation, and heat intolerance. To reduce the side-effects, intravesical oxybutynin may be used, however, approximately 15-20% of the patients will discontinue the intravesical oxybutinin therapy because of persistent side-effects or clinical ineffectiveness.

New strategies for treating neurogenic detrusor overactivity in antimuscarinic refractory or intolerant patients include intravesical administration of

resiniferatoxin or botulinum-A toxin injections into the detrusor muscle. In patients with spinal cord injuries, reorganization of the micturition reflex after the interruption of spinal cord pathways induces C fiber afferents to become mechanoreceptors which initiate reflex voiding. Resiniferatoxin inhibits stimulatory transmission from the bladder's afferent C fibers. Botulinum-A toxin selectively blocks acetylcholine release from presynaptic parasympathetic neuromuscular junctions thereby preventing detrusor hyperactivity. Clinical trials comparing the efficacy of single dose intravesical resiniferatoxin versus intravesical injections of botulinum-A toxin reveal both provide beneficial clinical and urodynamic results. Botulinum-A toxin injections however provide significantly superior clinical and urodynamic benefits over a longer time period than intravesical resiniferatoxin.

There are few studies documenting the efficacy and clinical applicability of sacral nerve stimulators in patients with neural injuries or congenitally maldeveloped nerves. Transcutaneous low-frequency neuromodulation has been used commonly in adults and less frequently in neurologically normal children to inhibit detrusor overactivity and treat urge incontinence. To date, the long-term results of transcutaneous neuromodulation in patients with neural injuries have not been described.

Aslan AR, Kogan BA: Conservative management in neurogenic bladder dysfunction. CURR OPINION IN UROL 2002;12:473-477.

Giannantoni A, Di Stasi SM, Stephen RL, et al: Intravesical resiniferatoxin versus botulinum-A toxin injections for neurogenic detrusor overactivity: A prospective randomized study. J UROL 2004;172:240-243.

Question 73 of 150
A 59-year-old woman with microscopic hematuria and a 70 pack per year smoking history has an abnormal cytology. Cystoscopy is negative. The best upper tract imaging modality is:

A: sonography.
B: intravenous urography.
C: CT urography.
D: MRI urography.
E: retrograde urography.

C: "CT urography." is correct.

Diagnosis of upper tract urothelial carcinoma is heavily dependent on imaging. Although sonography can be helpful, it does not have the sensitivity of the other listed modalities. Historically intravenous urography and retrograde urography have been the diagnostic modalities of choice. However, more recently CT urography has been increasingly used. The sensitivity of this modality approaches nearly 100% (compared to approximately 70% for intravenous and retrograde urography). In addition, radiolucent filling defects can be better imaged by CT urography. Although MRI is evolving, comparative studies are lacking. In addition, MRI has poorer spatial resolution compared to CT scan imaging and suffers from motion artifact.

Flanigan RC: Urothelial tumors of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 48, pp 1645-1647.

Vikram R, Sandler CM, Ng CS: Imaging and staging of transitional cell carcinoma: Part 2, upper urinary tract. AM J ROENTGENOLOGY 2009;192,1488-1493

Question 74 of 150
The factor most responsible for ureteral dilation during pregnancy is:

A: mechanical compression by the uterus.
B: elevated estradiol levels.
C: elevated progestin levels.
D: placental hormones.
E: increased urine flow.

A: "mechanical compression by the uterus." was the correct answer.

Dilation of the ureter occurs commonly during pregnancy and is most prominent by the 22nd to 24th week. Although various experiments have suggested that estrogens, progestins, placental hormones and increased GFR may play a role in the dilation, mechanical compression is the most significant factor. Indeed, quadrupeds have a lower incidence of ureteral dilation during pregnancy than bipeds.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds):

CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1219.

Question 75 of 150
A 37-year-old woman with diuretic induced hypokalemia has an elevated 24-hour urinary aldosterone level after a period of salt loading. The initial study for localization of her condition is:

A: MIBG scan.
B: CT scan.
C: ultrasound.
D: iodocholesterol scan.
E: adrenal venography.

B: "CT scan." was the correct answer.

In this patient with significant hypokalemia after diuretic use, the working diagnosis is a primary aldosterone producing tumor. The diagnosis is confirmed by evidence of elevated 24-hour urinary aldosterone levels after salt loading. The next step is to localize the site of the tumor. These tumors are generally localized by CT scan identifying the adrenal mass. If no mass is visible, selective adrenal vein sampling under ACTH stimulation is highly sensitive for localization of which adrenal gland is the source of the elevated aldosterone production. Ultrasound localization of the adrenal tumor is usually not sensitive enough to detect an adrenal tumor in an adult but may be used in a child. MIBG scan is used to localize pheochromoctyomas, to find metastatic pheochromocytoma site or to help identify the site of an extra adrenal paraganglioma. Iodocholesterol scanning is performed using radioactive labeled cholesterol; like the MIBG scan it lacks the special orientation of a CT or MRI scan. Iodocholesterol scans are primarily used to find ectopic steroid producing tumors.

Vaughan ED Jr, Blumenfeld JD. The adrenals, in Wein AJ. Kavoussi L, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, WB Saunders Co, 2007, vol 2, chap 53, p 1834.

Question 76 of 150
A 52-year-old woman with overactive bladder and incontinence is prescribed oxybutynin XL 5 mg daily. She returns somewhat improved after four weeks of therapy but has persistent bothersome urinary symptoms without adverse drug side effects. PVR is minimal and her urinalysis is negative. The next step is:

A: increase dose of oxybutynin.
B: discontinue oxybutynin and start tolterodine.
C: add imipramine.
D: cystoscopy.
E: sacral neuromodulation.

A: "increase dose of oxybutynin." was the correct answer.

The patient remains on a subtherapeutic dose of oxybutynin and adverse effects are not reported. Therefore increasing the dose to as high as 30 mg daily (as tolerated) would be the most appropriate first step. Adding or changing to another agent is not yet necessary.

Cystoscopy is not warranted. Neuromodulation is not indicated at this point as the patient has not had adequate medical therapy in terms of strength of drug or duration of therapy.

Abrams P, Drake M: Overactive bladder, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 61, pp 2085-2088.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, pp 1987-1988.

Continue

Question 77 of 150
The primary advantage of using frozen semen rather than fresh semen for in vitro fertilization with donor sperm is:

A: improved implantation rates.
B: improvement in embryonic vitality scores.
C: increased number of cryopreservable spare embryos.
D: decreased risk of HIV transmission.
E: decreased number of insemination cycles required to achieve a pregnancy.

D: "decreased risk of HIV transmission." was the correct answer.

Recent concerns over the transmission of sexually transmitted diseases by donor insemination have led to the use of frozen donor sperm, which permits quarantine of frozen sperm with re-screening of donors. The disadvantage of this increased safety is a lower per cycle pregnancy rate with intrauterine insemination, largely due to decreased motility of frozen-thawed donor sperm. The number of insemination cycles required to achieve a pregnancy may increase, although the cumulative pregnancy rates appear to be the same as with fresh semen. In contrast, use of frozen donor sperm with in vitro fertilization does not affect implantation rates, embryonic vitality scores or the number of spare embryos.

Anger JT, Gilbert Br, Goldstein M: Cryopreservation of sperm: Indications, methods, and results. J UROL 2003,170:1081-1082.

Question 78 of 150
A 12-year-old boy who has previously undergone an ileal augmentation catheterizes every four hours but develops recurrent bladder calculi. The most effective way to diminish recurrence is:

A: restrict dietary sodium.
B: potassium citrate.
C: daily bladder irrigation.
D: increase frequency of catheterization.
E: antibiotic prophylaxis.

C: "daily bladder irrigation." is correct.

The development of bladder calculi is a frequent complication following bladder augmentation. Sodium restriction to treat hypercalciuria is unnecessary since these stones are not usually due to hypercalciuria. Increased frequency of catheterization will not decrease stone formation. Potassium citrate supplementation has not proven to be effective in reducing the incidence of bladder calculi after augmentation. Antibiotic prophylaxis has not been proven to be effective in

preventing stones following bladder augmentation as they are not induced by infection. The most effective means of preventing stone formation is daily bladder irrigation to eradicate retained mucus, which has been shown to be a nidus for bladder stone formation.

Ho KLV, Segura JW: Lower urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 84, pp 2667-2669.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3684.

Khoury AE, Salomon M, Doche R, et al: Stone formation after augmentation cystoplasty: The role of intestinal mucus. J UROL 1998;158:1133-1137.

Question 79 of 150
A 66-year-old man, two years post-radical prostatectomy, seeks advice about therapy of severe urinary incontinence and complete erectile dysfunction. Both conditions are non-responsive to medical therapy. The next step is:

A: wait one year before definitive treatment.
B: artificial urinary sphincter first and a penile prosthesis at a later date.
C: penile prosthesis first and an artificial urinary sphincter at a later date.
D: penile prosthesis first and a male sling at a later date.
E: synchronous insertion of an artificial urinary sphincter and penile prosthesis.

E: "synchronous insertion of an artificial urinary sphincter and penile prosthesis." was the correct answer.

The ease of the transscrotal approach for penile prosthesis implantation and the proximity of the urethra has allowed the evolution of a new strategy for dual implantation of an artificial urinary sphincter (AUS) and inflatable penile prosthesis (IPP) at a single setting. Concerns regarding increased infection rates and poor outcomes have prevented widespread acceptance of this simultaneous implantation technique.

A multi-institutional evaluation of dual prosthesis implantation was performed to determine the overall efficacy, safety and long-term success of this innovative approach. Only patients undergoing dual implantation via a single transscrotal technique were included for evaluation. A total of 22 men underwent AUS and IPP device implantation between 2000 and 2003 in a synchronous manner. Mean followup was 17 months. Complications were urethral erosion in two patients (9%) and reservoir migration in two (9%), of whom one underwent revision. Importantly no patient experienced a prosthetic infection postoperatively. The overall revision rate was 14%, due to urethral erosion of the AUS in two patients and reservoir migration in one. Initial intermediate followup in patients who underwent synchronous dual prosthetic implantation was favorable. The inherent advantage of a single anesthetic event and a single transscrotal incision should encourage widespread acceptance of this technique. Sling insertion and the IPP may also be done simultaneously.

Kendirci M, Sanjeev Gupta S, Shaw K, et al: Synchronous prosthetic implantation through a transscrotal incision: An outcome analysis. J UROL 2006;175:2218-2222.

Question 80 of 150
A 57-year-old woman on hemodialysis for ten years has gross hematuria and mild right flank pain. Urine cytology and culture are negative. CT scan reveals small kidneys bilaterally with multiple cysts. Cystoscopy reveals bloody efflux from the right ureteral orifice, clear efflux from the left orifice, and normal bladder urothelium. The next step is:

A: antibiotic therapy.
B: angioinfarction of the right kidney.
C: right nephrectomy.
D: needle biopsy of kidney.
E: repeat CT scan in six months

C: "right nephrectomy." was the correct answer.

Eighty percent of patients with end-stage renal failure develop acquired renal cystic disease, and 1-2% will develop renal carcinoma. In fact, 15% of patients with renal carcinoma in this setting will present with metastatic disease. Thus

screening and treatment are important. The patient in question has unilateral bleeding and no evidence of infection as a cause. Due to the increased risk of malignancy, right nephrectomy is recommended. A negative needle biopsy alone would not be sufficient to exclude tumor.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1599.

Question 81 of 150
A ten-year-old girl with spina bifida has new onset of urinary incontinence. She had previously undergone sigmoid augmentation cystoplasty and bladder neck reconstruction. Renal ultrasound is normal. She performs CIC every four hours and is on oxybutynin 5 mg qid. A urodynamic study reveals detrusor overactivity with peak pressures of 60 cm H_2O starting at a bladder volume of 100 ml. The next step is:

A: increase oral oxybutynin.
B: intravesical oxybutynin.
C: oral loperamide.
D: bulking agent injection of bladder neck.
E: reaugment bladder using ileum.

E: "reaugment bladder using ileum." was the correct answer.

Approximately 6% of bladder augmentations will fail due to high pressure contractions of the augmenting segment, especially if not detubularized. Persistent bladder overactivity places the patient at risk for incontinence, perforation, and upper tract changes. In spite of pharmacologic management, there is still high bladder pressures making further medical management unlikely to work. Injection of a bulking agent around the bladder neck will not address the primary problem of bladder overactivity. Augmenting the augmented bladder with an additional segment of ileum will treat the problem.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3680.

Question 82 of 150
A man with erectile dysfunction, diabetes, and an associated autonomic neuropathy complains of debilitating diplopia with sildenafil despite obtaining an excellent erectile response. He should be advised to discontinue sildenafil and:

A: seek an ophthalmologic consultation.
B: use intracavernosal injections.
C: use an intra-urethral suppository.
D: use vardenafil.
E: use tadalafil.

E: "use tadalafil." is correct.

Diplopia, blurred vision and loss of color vision (chromatopsia) is related to cross activity that some PDE5 inhibitors have for PDE6, the retinal phototransduction enzyme. This is most pronounced with sildenafil and vardenafil and is rarely associated with tadalafil as the latter has very little affinity for PDE6. An ophthalmologic consultation is not required as the adverse event is well documented. An ophthalmologist should be seen for loss of visual acuity or blindness. The fact that the patient responded well to a sildenafil illustrates that his autonomic neuropathy is minimal and the need for more invasive treatments such as transurethral PGE1 suppository or intracavernosal injection therapy is low. Penile pain due to PGE1 suppository or PGE1 injection monotherapy may be experienced.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, p 776.

Question 83 of 150
Stress-related cortisol production comes from the:

A: zona glomerulosa.
B: zona fasciculata.
C: zona reticularis.
D: entire adrenal cortex.
E: adrenal medulla.

B: "zona fasciculata." was the correct answer.

The zona fasciculata is responsible for cortisol production, the zona glomerulosa for mineralocorticoid production, and the zona reticularis for androgen and estrogen production. The adrenal medulla secretes catecholamines.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1825.

Question 84 of 150
Thirty days following treatment of a pyoderma, a five-year-old girl has hematuria, edema, hypertension, and oliguria. Her microscopic urine assessment shows dysmorphic RBCs and RBC casts. Her diagnosis would be confirmed by:

A: mesangial deposits of IgA.
B: anti-glomerular basement membrane antibodies.
C: elevated complement C3 and C4.
D: elevated anti-neutrophil cytoplasmic antibodies (ANCA).
E: elevated antistreptolysin-O (ASO) and a decreased complement C3.

E: "elevated antistreptolysin-O (ASO) and a decreased complement C3." was the correct answer.

This child presents with classic post streptococcal acute glomerulonephritis. The latency period for a beta-hemolytic streptococcal pyoderma is 21 to 30 days. Diagnosis is made by a positive anti-streptolysin-O or streptozyme titer and a decreased serum complement of C3 and C4 concentrations. Elevated anti-neutrophil cytoplasmic antibodies are found in the circulation of patients with necrotizing systemic vasculitis such as polyarteritis nodosa and Wegener's granulomatosis. Anti-glomerular basement membrane antibodies are seen in patients with Good Pasture's Syndrome. Mesangial deposits of IgA occur with IgA nephropathy. Symptoms of post infectious glomerulonephritis is sometimes confused with IgA nephropathy, however, the prodromal period between the two are different. Gross hematuria in-patients with IgA nephropathy occurs during the acute illness compared to the latency seen in post streptococcal glomerulonephritis, seven days for strep pharyngitis 30 days for strep pyoderma.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3226.

Question 85 of 150
A 76-year-old healthy woman with nocturnal polyuria is prescribed DDAVP. Hyponatremia may result from:

A: increased sodium excretion.
B: increased urea reabsorption.
C: decreased potassium excretion.
D: decreased luminal aquaporin channels in the collecting duct.
E: decreased effective circulating volume.

B: "increased urea reabsorption." was the correct answer.

DDAVP may be used for the treatment of nocturnal polyuria. DDAVP results in hypertension due to its effects on the V1 receptor. It increases effective circulating volume, increases potassium excretion and results in increased insertion of aquaporin channels in the collecting duct which is the mechanism by which it exerts its fluid retention properties. DDAVP increases urea reabsorption in the medullary collecting tubule maintaining the high interstitial osmolality required for fluid reabsorption. Increased water retention in excess of sodium retention will lead to hyponatremia.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1137.

Question 86 of 150
Pheochromocytomas that occur in association with the multiple endocrine adenoma (MEA) syndromes differ from sporadic pheochromocytomas in that:

A: bilateral occurrence is more common.
B: paroxysmal attacks occur more frequently.
C: extra-adrenal sites are more common.
D: hypertension is more severe.
E: secretion of norepinephrine alone is more common.

A: "bilateral occurrence is more common." was the correct answer.

The clinical manifestations of pheochromocytoma in the familial syndromes are the same as those in sporadic cases except that in familial syndromes, the pheochromocytomas are almost always bilateral and more frequently malignant.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1860.

Question 87 of 150
A 40-year-old man has hypertension treated with enalapril and furosemide. He develops muscular weakness, headaches, and polydipsia. Laboratory evaluation reveals hypokalemic alkalosis. Furosemide is discontinued but the hypokalemia persists and supplemental potassium is given. The next step is:

A: saline suppression test.
B: posture stimulation test.
C: aldosterone to renin ratio.
D: discontinue enalapril.
E: adrenal CT scan.

D: "discontinue enalapril." was the correct answer.

This man has hypertension and hypokalemia, therefore evaluation for primary aldosteronism is indicated. Measurements of aldosterone should be performed only after potassium supplementation because aldosterone secretion is attenuated by the potassium deficit. Also, angiotensin converting enzymes and calcium channel blockers must be discontinued for at least two weeks before diagnostic evaluation since they may reduce aldosterone biosynthesis and improve hypokalemia in some patients. Adrenal evaluation by CT scan is not cost effective and is unwarranted until other causes are eliminated.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1846-1856.

Question 88 of 150
The primary goal in the treatment of premature ejaculation is:

A: intra-vaginal ejaculatory latency > 1 minute.

B: intra-vaginal ejaculatory latency > 3 minutes.
C: intra-vaginal ejaculatory latency > 5 minutes.
D: improved self-perception of ejaculatory control.
E: improved patient and partner satisfaction.

E: "improved patient and partner satisfaction." is correct.

The AUA premature ejaculation (PE) guidelines suggest that patient and partner satisfaction is the main end-point in the treatment of PE. The patient and his partner (should one exist) can be reassured that PE is a common and treatable disorder. Information on the risks and benefits of all therapeutic options should be presented to the patient (and partner) so that an educated treatment choice may be made by the patient in consultation with the physician. Premature ejaculation is not a life-threatening condition; therefore, safety should be another significant consideration. Of note, none of the medical therapies currently employed in the management of PE have been approved by the Food and Drug Administration for this specific indication.

Montague DK, Jarow J, Broderick GA, et al: Guideline on the pharmacologic management of premature ejaculation. PHARMACOLOGIC MANAGEMENT OF PREMATURE EJACULATION GUIDELINE. American Urological Association Education and Research, Inc, 2004. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=pme

Question 89 of 150
A 75-year-old man undergoes a TURP for obstructive voiding symptoms. He was treated three years ago with six weeks of intravesical BCG therapy for a noninvasive urothelial carcinoma of the bladder, and has not had any tumor recurrence. The TUR specimen reveals BPH and urothelial CIS of the prostatic urethra. There is no evidence of ductal or stromal invasion. The most appropriate management is:

A: repeat BCG therapy.
B: mitomycin C therapy.
C: repeat TURP.
D: cystoscopy and cytology in three months.
E: radical cystoprostatectomy and urethrectomy.

A: "repeat BCG therapy." was the correct answer.

Tumor recurrence in the prostatic urethra is common following intravesical BCG therapy for superficial urothelial carcinoma of the bladder. If the recurrence is confined to the prostatic urethral epithelium, it may be completely eradicated by the TURP. Delivery of an additional course of BCG can effectively be administered and treat prostatic urethral CIS after TURP. This approach will reduce recurrence of the CIS as compared to observation and subsequent cystoscopy, and is thus a preferred treatment. Mitomycin C is a less effective agent against CIS than BCG. Repeat TURP is unneccessary. Radical cystoprostatectomy is necessary if the CIS does not respond to BCG. Otherwise it is overly aggressive in this setting.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, pp 2455-2456.

Question 90 of 150
The antibiotic that can be given during any trimester of pregnancy without harm to the fetus is:

A: trimethoprim/sulfamethoxazole.
B: gentamicin.
C: nitrofurantoin.
D: cephalexin.
E: ciprofloxacin.

D: "cephalexin." was the correct answer.

All medications should be used with caution during any trimester of pregnancy. UTIs will occur in 4-7% of pregnancies and it is generally recommended that penicillins and cephalosporins should be used for treatment. Medications that are relatively contraindicated during pregnancy include the fluoroquinolones, trimethoprim, erythromycin, tetracycline, sulfonamides, and nitrofurantoin. Fluoroquinolones are contraindicated because of their effects on immature cartilage. Trimethoprim may have teratogenic effects and should be avoided, especially in the first trimester. Tetracycline may cause fetal malformations and maternal liver decompensation. Sulfonamides may cause kernicterus and neonatal hyperbilirubinemia and should be avoided in the third trimester. Nitrofurantoin can cause hemolytic anemia in both mother and child when glucose-6-phosphate dehydrogenase deficiency is present.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 289-292.

Question 91 of 150
During videourodynamics in a patient with a history of a T8 spinal cord injury, detrusor external sphincter dyssynergia is characterized by simultaneous:

A: increased EMG activity, detrusor underactivity, and narrowing of the prostatic urethra.
B: increased EMG activity, detrusor overactivity, and narrowing of the membranous urethra.
C: decreased EMG activity, detrusor overactivity, and dilation of the prostatic urethra.
D: decreased EMG activity, detrusor underactivity, and narrowing of the membranous urethra.
E: decreased EMG activity, detrusor underactivity, and dilation of the prostatic urethra.

B: "increased EMG activity, detrusor overactivity, and narrowing of the membranous urethra." was the correct answer.

Detrusor external sphincter dyssynergia occurs in spinal lesions located between the pons and sacral spinal cord. It is characterized by detrusor overactivity and concomitant involuntary contraction of the external sphincter. This results in a narrowed or closed membranous urethra with a proximally dilated prostatic urethra.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2037.

Question 92 of 150
A 76-year-old man with diabetes has hematuria. CT urogram shows a 5 mm filling defect in the distal right ureter. Ureteroscopic biopsy reveals a low grade, noninvasive urothelial carcinoma. The best treatment is:

A: nephroureterectomy.
B: ureteral stent and intravesical BCG.
C: segmental resection and ureteroureterostomy.

D: ureteroscopic tumor ablation.
E: distal ureterectomy and reimplantation.

D: "ureteroscopic tumor ablation." is correct.

In an older patient with medical problems, ureteroscopic biopsy, electro-resection and laser destruction has been utilized to successfully manage small, low grade, non-invasive ureteral tumors. This approach may avoid nephroureterectomy or partial resection. Although, historically, distal ureterectomy and reimplantation has been considered, endoscopic management of solitary low grade tumors have become the preferred treatment. Upper tract BCG may be effective for high grade disease, but delivery of the agent is least consistent when relying on reflux around a ureteral stent.

Sagalowsky AI, Jarrett TW: Management of urothelial tumors of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 49, pp 1672-1675.

Question 93 of 150
The major site of action of aldosterone in the kidney is the:

A: proximal tubule.
B: juxtaglomerular apparatus.
C: ascending portion of Henle's loop.
D: collecting duct.
E: distal tubule.

E: "distal tubule." was the correct answer.

Aldosterone is a mineralocorticoid produced in the adrenal cortex. Its main site of action is in the distal tubule. Aldosterone acts on the distal renal tubule to promote the absorption of sodium and the excretion of potassium. The main stimulus for aldosterone release is decreased renal perfusion which causes the juxtaglomerular apparatus within the kidney to release renin. Renin promotes the conversion of angiotensinogen to angiotensin I. Angiotensin I is converted to angiotensin II which stimulates aldosterone release. Elevated potassium also stimulates aldosterone release, but is less potent than decreased renal perfusion.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1824-1828.

Question 94 of 150
The role of T cells in tumor immune response includes:

A: little role in tumor rejection.
B: expression of granules and perforins.
C: suppression of apoptosis.
D: down regulation of Fas ligand.
E: elaboration of interferon gamma to effect natural killer cells.

B: "expression of granules and perforins." was the correct answer.

T cell lymphocytes are central to the generation of an effective tumors, anti-infective, and transplant immune responses. In urological tumor, T cells with markers CD8+ and CD4+ can both destroy tumor cells by elaboration of cytoplasmic granules containing the pore-forming protein perforin, resulting in plasma membrane disruption. In addition, T cells can upregulate Fas ligand that can bind to Fas to induce apoptosis. The elaboration of interferon gamma is known to be critical in activation of other effector cells, such as macrophages.

Flechner SM: Basic Principles of Immunology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, WB Saunders Co, 2007, vol 1, chap 15, p 495.

Question 95 of 150
A 60-year-old man has a grade 3, T1 urothelial carcinoma of the bladder. He receives the fifth of six weekly instillations of intravesical BCG. Twelve hours later, he has a temperature of 39.5°C, difficulty breathing, and hypotension. The most likely cause of this complication is:

A: reflux of BCG into the upper tracts.
B: acute UTI.

C: traumatic catheterization.
D: more virulent strain of BCG.
E: impaired immunological state.

C: "traumatic catheterization." is correct.

The majority of patients tolerate BCG instillation well. In 2,602 patients treated with different strains of BCG, high fever (>39 degrees C) was noted in 2.9% of patients. Life-threatening BCG sepsis was noted in 0.4%. Fever greater than 39.5 degrees C that does not resolve within 12 hours despite antipyretic therapy is potentially dangerous. Since most cases of BCG sepsis are associated with intravenous absorption of BCG it is recommended that BCG not be given until at least one week after tumor resection. In the patients who died from BCG sepsis, almost all cases had traumatic catheterization before instillation therapy or they were treated too early after TURBT or biopsy. Treatment should include isoniazid 300 mg, rifampin 600 mg, and ethambutol 1200 mg daily. After antituberculosis drugs are started, corticosteroids may be given if the patient is toxic. Given the timing of the signs and symptoms in relation to the BCG instillation, acute UTI is much less likely to be a cause.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2459.

Lamm DL, van der Meijden APM, Morales A, et al: Incidence and treatment of complications of Bacillus Calmette-Guerin intravesical therapy in superficial bladder cancer. J UROL 1992,147:596.

Question 96 of 150
A ten-year-old boy with precocious puberty has bilateral nodular testes. Testicular ultrasound reveals multiple bilateral solid masses. The serum 17-hydroxyprogesterone is elevated and the karyotype is 46 XY. The next step is:

A: cranial MRI scan.
B: abdominal CT scan.
C: testicular biopsy.
D: bilateral orchiectomy.
E: corticosteroids.
E: "corticosteroids." is correct.

This boy has CAH and presents with precocious puberty. Elevation of the serum 17-hydroxyprogesterone helps in making this diagnosis. Treatment with corticosteroids is therapeutic. Young children are often inconsistent in taking medications. In those who stop medications or are on an insufficient dose, multiple "adrenal rests" develop in the testes. They will usually resolve with appropriate steroid treatment. Occasionally they may become autonomous. Biopsy is unnecessary, but if done, will look identical to Leydig cell tumors, but without Reinke crystals. Radiographic imaging of the pituitary and adrenal is not needed unless there is other evidence of pituitary stimulation or excess adrenal androgen production.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3904.

Question 97 of 150
A 52-year-old woman underwent a percutaneous needle biopsy of the right kidney. Two months later, an abdominal bruit is heard in the right upper quadrant and a renal arteriogram demonstrates an arterio-venous fistula in the lower pole of the right kidney. She is asymptomatic with blood pressure well-controlled by medication and has a serum creatinine of 1.4 mg/dl. The next step is:

A: observation.
B: selective embolization.
C: partial nephrectomy.
D: operative ligation.
E: complete nephrectomy.

A: "observation." was the correct answer.

Most traumatic AV fistulas of the kidney, such as those caused by percutaneous biopsy, are asymptomatic, small, and will close spontaneously without intervention. Symptomatic fistulas can cause hypertension, persistent hematuria, or high-output heart failure. Symptomatic AV fistula can be managed by embolization, operative ligation of the feeding vessels, or partial/complete

nephrectomy depending upon their size and location.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1189-1190.

Question 98 of 150
An asymptomatic 62-year-old man has an isolated 3.5 cm biopsy proven local recurrence in the right renal fossa four years after a right radical nephrectomy for a localized (T3a NoMo) RCC. The metastatic evaluation is otherwise negative. The best management is:

A: immunotherapy.
B: radiation therapy.
C: VEGF inhibitor.
D: surgical excision.
E: tyrosine kinase inhibitor.

D: "surgical excision." was the correct answer.

Local recurrence after radical nephrectomy is uncommon (approximately 2-4% of cases). Although local recurrence of renal cancer often precedes the development of widespread metastases, a significant percentage have local disease only and may be salvaged with surgical excision. Resection can provide a long-term cancer free status for about 30-40% of patients in this situation. Radiation therapy can help with palliation. The role of immunotherapy is unclear in this setting. Tyrosine kinase and VEGF inhibitors have not been evaluated in this setting.

Esrig D, Ahlering TE, Lieskovsky G, et al: Experience with fossa recurrence of renal cell carcinoma. J UROL 1992;147:1491-1496.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1622.

Question 99 of 150
An eight-year-old boy is an unrestrained passenger in a MVC. He complains of left abdominal pain and has left upper quadrant tenderness on physical examination. He is hemodynamically stable and has microscopic hematuria. CT scan shows a

normal right kidney. The left kidney is markedly hydronephrotic and there is perinephric contrast extravasation. The left ureter is not visualized. The next step is:

A: observation and antibiotics.
B: renal scan.
C: retrograde pyelogram.
D: percutaneous nephrostomy.
E: renal exploration.

C: "retrograde pyelogram." is correct.

This boy likely has an injury to the collecting system in a chronically obstructed kidney. The most likely sites of extravasation are the dilated pelvis or fornix. However, a UPJ disruption is also possible and needs to be excluded. The radiographic sign of importance is the absence of distal ureteral filling during the CT scan. Renal salvage is enhanced by early diagnosis which may be best confirmed by retrograde pyelography in preparation for a definitive repair. Prior to any type of open exploration, the status of the ureter needs to be defined. At the time of the retrograde pyelogram, a stent may be left in the ureter distal to the disruption to facilitate surgical dissection.

Casale AJ: Urinary tract trauma, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001 chap 59, pp 923-943.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, p 3936.

Question 100 of 150
An 82-year-old man has troublesome nocturia. He has hypertension, atrial fibrillation, and glaucoma. He takes diltiazem, digoxin, atorvastatin, tamsulosin, and eye drops. On exam, he has peripheral edema. Baseline creatinine is 1.2 mg/dl and serum sodium is 136 mEq/l. A relative contraindication to the use of desmopressin in him is his:

A: concurrent medications.
B: history of glaucoma.

C: peripheral edema.
D: atrial fibrillation.
E: hypertension.

C: "peripheral edema." is correct.

Elderly patients have an elevated risk of hyponatremia from desmopressin use, and in general, it should be discouraged. In this patient, the presence of hyponatremia and potential CHF (i.e., peripheral edema) increases his risk. Hypertension, glaucoma, atrial fibrillation are not contraindications in and of themselves.

Resnick NM, Yalla SV: Geriatric incontinence and voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 71, p 2317.

Question 101 of 150
A 19-year-old man has headaches, polydipsia, and polyuria. He has hypokalemia and an elevated peripheral vein renin. Abdominal CT scan demonstrates a 2 cm mass adjacent to or involving the upper pole of the right kidney; the left kidney is normal. The most likely diagnosis is:

A: adrenal cortical carcinoma.
B: juxtaglomerular cell tumor.
C: pheochromocytoma.
D: renal cell carcinoma.
E: aldosteronoma.

B: "juxtaglomerular cell tumor." was the correct answer.

The findings in this patient are a classic history as well as laboratory and radiographic findings of a juxtaglomerular cell tumor. These rare, benign tumors occur most commonly in people less than 20 years of age and are curable by surgical excision. The hypokalemia results from secondary hyperaldosteronism. Patients with aldosteronomas should have suppressed plasma renin levels. These findings are not characteristic of the other tumors listed. Pheochromocytomas cause hypertension by release of sympathetic amines and do not cause hypokalemia.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi

LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1582.

Question 102 of 150
A 47-year-old calcium oxalate stone former wishes to go on a high animal protein, low carbohydrate, weight loss diet. The following changes in urinary chemistries are expected:

A: calcium: ↑ uric acid: ↑ citrate: ↓ pH: ↑
B: calcium: ↑ uric acid: ↑ citrate: ↓ pH: ↓
C: calcium: ↑ uric acid: ↓ citrate: ↑ pH: ↓
D: calcium: ↓ uric acid: ↓ citrate: ↓ pH: ↑
E: calcium: ↓ uric acid: ↑ citrate: ↓ pH: ↓

B: "calcium: ↑ uric acid: ↑ citrate: ↓ pH: ↓" was the correct answer.

Consumption of a low carbohydrate high protein diet delivers a marked acid load to the kidney, increases the risk for stone formation, decreases estimated calcium balance, and may increase the risk for bone loss. This leads to increased urinary calcium and uric acid excretion, decreased citrate excretion, and lowering of urinary pH.

Reddy ST, Wang CY, Sakhaee K, et al: Effect of low-carbohydrate high-protein diets on acid-base balance, stone-forming propensity, and calcium metabolism. AM J KID DIS 2002;40:265-274.

Question 103 of 150
A 37-year-old man with HIV and ESRD is being evaluated for a living donor kidney transplant from his sister. A possible contraindication to transplantation is:

A: HIV infection.
B: CD4 counts < 100.
C: detectable HIV viral load.
D: concomitant administration of immunosuppressive agents.
E: co-infection with hepatitis C virus

B: "CD4 counts < 100." was the correct answer.

The presence of HIV in a patient has historically been considered a contraindication to transplantation because of the following concerns: (1) a stable HIV-positive candidate will immunologically decompensate with immunosuppression; (2) the viral load will increase and/or immunosuppression may enhance HIV mutations; (3) the pharmacokinetics and pharmacointeractions of antiretroviral agents and immunosuppression may lead to subtherapeutic effects or toxicity; and (4) the public perception of offering transplantation to HIV-positive patients will lead to diminished support for donation. Limited experience prior to now suggested that organ transplantation is effective in selected HIV-positive patients. Several key papers have been recently published on the topic of organ transplantation in HIV-positive patients, as well as important clinical research developments that would not preclude HIV status as a contraindication as previously practiced. The concomitant use of immunosuppressive agents does not seem to increase the virulence, recurrence, or progression of HIV disease. The co-infection with hepatitis C virus also is not an absolute contraindication unless there is evidence of cirrhosis. CD4 is a primary receptor used by HIV-1 to gain entry into host T cells. CD4 counts < 100 is one definition of AIDS and is an absolute contraindication to transplantation.

Stock PG, Roland ME, Carlson L, et al: Kidney and liver transplantation in human immunodeficiency virus-infected patients: A pilot safety and efficacy study. TRANSPL 2003;76:370-375.

Question 104 of 150
The chemotherapeutic agent that may be associated with increased absorption with continent diversion is:

A: methotrexate.
B: 5-fluorouracil.
C: vincristine.
D: cisplatin.
E: Adriamycin.

A: "methotrexate." was the correct answer.

Although chemotherapy is generally well tolerated in patients with urinary diversion, methotrexate toxicity has been documented. Methotrexate toxicity can be compounded in patients who require adjuvant therapy after radical cystectomy and neobladder construction due to reabsorption of this agent by the neobladder. Vigorous hydration and alkalinization of the urine along with liberal leucovorin

rescue is indicated to reduce the likelihood of this complication. In patients with continent diversion receiving chemotherapy, consideration should be given to pouch drainage during drug administration. 5-fluorouracil is rarely used in the treatment of invasive bladder cancer. Cisplatin, Adriamycin and vincristine are not reabsorbed by ileal mucosa.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2573-2574.

Question 105 of 150
While performing a videourodynamic study in a three-year-old child, the recommended rate of bladder filling is:

A: 10 ml/min.
B: 20 ml/min.
C: 30 ml/min.
D: 40 ml/min.
E: 50 ml/min.

A: "10 ml/min." was the correct answer.

The rate of bladder filling (ml/min) is calculated by determining the child's predicted bladder capacity (average bladder capacity in ml = age in years + 2 X 30) and dividing the result by 10. In this case, (3+2) X 30 = 150/10 = 15 ml/min or less. It is important not to fill the bladder too fast as it may result in falsely low levels of detrusor compliance and may produce artifactual detrusor contractions. Filling at 10 percent per minute of the calculated bladder capacity (or less) avoids these problems.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3616-3618.

Question 106 of 150
A 32-year-old man has persistent penile pain three months after implantation of an inflatable penile prosthesis. Exam demonstrates no evidence of infection and a

sigmoid deformity of the shaft with a cylinder palpable under the skin. The best treatment is:

A: six weeks of oral antibiotics.
B: six weeks of I.V. antibiotics.
C: removal of prosthesis.
D: downsizing of cylinders.
E: patch graft to tunical albuginea.

D: "downsizing of cylinders." is correct.

When a penile prosthesis that is too long is implanted, the patient may complain of pain that does not subside as healing takes place after device implantation. Alternatively, it may lead to erosion of the rod either into the meatus or through the glans. Buckling may also cause erosion through the tunica albuginea. Reoperation with placement of smaller rods usually relieves the pain and avoids impending erosion. Cylinders that are too long may result in a sigmoid (S) penile deformity that might lead to premature cylinder failure. Antibiotic therapy will not improve his pain and patching the tear in the tunica albuginea will fail secondary to the oversized prosthesis.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, pp 795-797.

Question 107 of 150
A 54-year-old woman undergoes an ileocecal pouch cutaneous urinary diversion two years after pelvic radiation for cervical cancer. Four months later, she has right lower quadrant pain and fecaluria. A pouchogram reveals contrast extending into the colon adjacent to the pouch. The next step is:

A: hyperalimentation.
B: bilateral nephrostomy drainage.
C: pouch endoscopy and fulguration of fistula.
D: catheter drainage and low residue diet.
E: colonoscopy.

D: "catheter drainage and low residue diet." was the correct answer.

Entero-pouch fistulas have been reported after ileal and right colon urinary diversion. The diagnosis should be suspected in patients who present with gastrointestinal symptoms and metabolic acidosis. These fistulas are most common after pelvic irradiation. Conservative therapy is often effective with low residue diet and continuous pouch drainage. Further diagnostic evaluation with colonoscopy or pouch endoscopy is of little value, and biopsy or fulguration may enlarge the fistula. Bilateral nephrostomy drainage alone will not achieve maximal drainage of the pouch. Open surgical exploration may be required if this regimen fails.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2362.

Question 108 of 150
Ultrasound of a 28-week-old fetus demonstrates normal kidneys and amniotic fluid. The bladder is not visualized on several ultrasounds. The most likely explanation is:

A: persistent cloaca.
B: bilateral ectopic ureters.
C: maternal dehydration.
D: bladder exstrophy.
E: patent urachus.

D: "bladder exstrophy." was the correct answer.

The bladder is visible in the fetus at 14 weeks gestation. Nonvisualization of the bladder is seen in the fetus with poor renal function and oligohydramnios, cloacal exstrophy, bladder exstrophy and persistent cloaca. The finding of normal kidneys and normal amniotic fluid excludes bladder agenesis and ectopic ureters. The bladder is visualized with a patent urachus. Prenatally diagnosed bladder exstrophy demonstrates an absent bladder, anterior abdominal mass and low-set umbilicus on ultrasound examination.

Gearhart JP, Ben-Chaim J, Jeffs RD, Sanders RC: Criteria for the prenatal diagnosis of classic bladder exstrophy. OBS & GYN 1995;85:961-964.

Gearhart JP, Mathews R: Exstrophy-epispadias complex, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 119, p 3507.

Question 109 of 150
A 32-year-old man has painful ischemic priapism lasting 36 hours and undergoes a unilateral cavernosal glanular shunt (T-shunt). In the operating room he becomes flaccid but his erection recurs within ten minutes. The next step is:

A: observation and pain management.
B: irrigate with phenylephrine.
C: contralateral T-shunt.
D: cavernosal-spongiosal shunt.
E: cavernosal-saphenous vein shunt.

C: "contralateral T-shunt." was the correct answer.

The T-shunt is a cavernosal-glanular shunt that is a simple shunt for the treatment of ischemic priapism. It has demonstrated success even after prolonged periods of ischemic erection with the majority of men preserving erectile function following treatment. An 11-blade is inserted through the glans and into the distal corpus cavernosum. It is then rotated 90 degrees and removed creating the "T". A Hegar dilator is then inserted into the incision and dilated down the length of the corpora. The penis is observed in the operating room for 15 minutes and if it remains flaccid a unilateral procedure is adequate. Should the erection return the next step is a bilateral procedure. Observation would not be appropriate at his time and irrigation would not be effective. A more proximal shunt is not indicated until continued failure of the T-shunt.

Burnett AL: Priapism, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 26, pp 846-848.

Brant WO, Garcia MM, Bella AJ, et al: T-shaped shunt and intracavernous tunneling for prolonged ischemic priapism. J UROL 2009;181:1699-1705.

Montague DK, Jarow J, Broderick GA, et al: Guideline on the management of priapism. MANAGEMENT OF PRIAPISM GUIDELINE. American Urological Association Education and Research, Inc, 2003.

http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=priapism

Question 110 of 150
A 32-year-old man has clinical stage I seminoma of the left testis. At the time of radical orchiectomy, he undergoes a right testis biopsy because the right testis is atrophic. Biopsy of the right testis demonstrates testicular intra-epithelial neoplasia (CIS). The next step is 20 Gy to the retroperitoneum and:

A: right orchiectomy and androgen replacement.
B: platinum-based chemotherapy.
C: low-dose XRT to the right testis.
D: serial testicular ultrasounds.
E: repeat testis biopsy in six months.
C: "low-dose XRT to the right testis." was the correct answer.

Involvement of the contralateral testis with intraepithelial neoplasia (CIS) occurs in 4-5% of patients with germ cell tumors. The presence of an atrophic contralateral testis appears to be a significant risk factor for this condition. While it is controversial, there does appear to be significant risk of developing tumor in the contralateral testis if left untreated. In an attempt to avoid a bilateral orchiectomy, localized radiation was introduced in 1985 as treatment of CIS in the contralateral gonad. Radiotherapy eradicates CIS cells to prevent cancer development and to preserve sufficient Leydig cell function. Low-dose XRT has been shown to be highly effective and more effective than chemotherapy in this setting while preserving Leydig cell function in most patients.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 897, 898, 899.

Continue
Question 111 of 150
A seven-year-old girl has daytime incontinence that is not associated with infection. She has marked constipation and encopresis. Her physical examination reveals a normal appearing spine, and a normal neurologic examination. Her bladder is not percussible, and urinalysis is normal. The next step is timed voiding and:

A: spinal MRI scan.
B: VCUG.
C: urodynamic evaluation.

D: oxybutynin.
E: bowel management.

E: "bowel management." is correct.

In the absence of a UTI, a VCUG or urodynamic evaluation is overly invasive. A spinal MRI scan is not warranted in the absence of any neurologic abnormality or spinal defect. Although oxybutynin is acceptable empiric treatment, it will likely make the constipation worse. Aggressive treatment of the constipation has been shown to benefit not only the encopresis, but also the urinary incontinence.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3614-3619.

Question 112 of 150
A 47-year-old woman underwent closure of a bladder laceration at the time of an abdominal hysterectomy. Because of persistent leaking for two months, a transvaginal vesicovaginal fistula repair was required. Leaking recurs after another five months and a vaginal cuff fistula is found. CT urogram is normal and cystoscopy reveals a 1 cm fistulous tract with patchy, raised edema. The next step is:

A: serial cystoscopy and repair when edema resolves.
B: cystoscopy and biopsy of fistulous tract.
C: injection of fistula tract with fibrin sealant.
D: immediate vaginal repair with Martius flap.
E: immediate abdominal repair with omental interposition.

B: "cystoscopy and biopsy of fistulous tract." was the correct answer.

In this particular patient, the presence of persistent edema and tissue changes in a patient who has failed repair five months earlier may indicate undetected malignancy. If there is any suspicion, a biopsy should be performed to rule out malignancy. If benign, surgical repair may be carried out by either a vaginal or transabdominal approach at the discretion of the surgeon when the tissue quality appears suitable for repair. This may be determined by serial cystoscopy and

vaginal exams as indicated. Fibrin sealant has not been shown to be effective in repair of large fistula.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2326.

Question 113 of 150
A 52-year-old man on steroids for rheumatoid arthritis has a solitary, 2.0 cm, high-grade urothelial carcinoma on the posterior bladder wall with focal invasion of the lamina propria. The best management is:

A: intravesical BCG.
B: intravesical BCG with interferon.
C: intravesical mitomycin C.
D: partial cystectomy.
E: radical cystectomy.

C: "intravesical mitomycin C." was the correct answer.

Overall, about 70% of patients with unifocal stage T1a (focally or minimally invasive) can be successfully managed with intravesical therapy, so at least one course of intravesical therapy should be strongly considered. Immunomodulators such as BCG or interferon are dependent on an intact immune system, and tend to be less effective in immuno-suppressed patients. A course of mitomycin C followed by close surveillance would be the best option, followed by surgery if refractory disease was encountered. Although partial or radical cystectomy may be indicated in some patients with high grade T1 tumors, these treatment options are overly aggressive for the patient with first time, focal T1 disease.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, pp 2457-2459.

Question 114 of 150

A two-month-old boy has a 4 cm right adrenal mass. Biopsy reveals neuroblastoma. There are metastases to the skin, liver. and bone marrow. Skeletal survey is negative. The next step is:

A: observation.
B: flank irradiation.
C: multi-agent chemotherapy.
D: right adrenalectomy.
E: total body irradiation and bone marrow transplant.

A: "observation." was the correct answer.

This infant has stage IV-S neuroblastoma. This can include involvement of skin, liver, and bone marrow without bone metastases on skeletal survey. Observation therapy alone in children less than one year of age is usually sufficient and metastases regress. In older children, or in cases where metastases do not regress, chemotherapy is used.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, pp 3873-3875.

Question 115 of 150
A decrease in renal injury with SWL can be accomplished by:

A: starting at a low energy setting.
B: starting at a low energy setting and pausing for 3-4 minutes before increasing the energy setting.
C: increasing the shockwave firing rate.
D: increasing the shockwave firing rate and starting at a low energy setting.
E: starting at a slow shockwave firing rate and pausing for 3-4 minutes before increasing the shockwave firing rate.

B: "starting at a low energy setting and pausing for 3-4 minutes before increasing the energy setting." was the correct answer.

Recent research suggests that the power level of the priming dose is not the factor responsible for the protection from injury from SWL. Instead, it was observed that inclusion of a 3 to 4 minute pause following the priming dose was protective, while increasing the power setting without this delay did not result in reduced injury.

Increasing the shockwave firing rate would increase the renal injury incurred.

Lingeman JE, McAteer JA, Assimos DG, et al: WHITE PAPER: CURRENT PERSPECTIVE ON ADVERSE EFFECTS IN SHOCK WAVE LITHOTRIPSY. American Urological Association Education and Research, Inc, 2009. http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines/main-reports/whitepaper.pdf

Question 116 of 150
An increased risk of postoperative urinary retention following interstitial brachytherapy is associated with a:

A: prostate volume of 25 gm.
B: Gleason score 8-10.
C: preoperative hormonal deprivation therapy.
D: preoperative postvoid residual of 125 ml.
E: preoperative AUA Symptom Score 18.

E: "preoperative AUA Symptom Score 18." was the correct answer.

Acute urinary retention following interstitial brachytherapy occurs between 12-35% of patients. Risk factors include a prostate volume of > 35 grams, a post-treatment volume of > 55 grams, number of needle punctures > 33 and an AUA Symptom Score of > 12. The postvoid residual and the uroflow score were not predictive of acute urinary retention following brachytherapy. Initial management includes catheter drainage and alpha-blocker therapy. Some studies have added a short course of steroid therapy to reduce the acute inflammation.

Locke J, Ellis W, Wallner K, et al: Risk factors for acute urinary retention requiring temporary intermittent catheterization after prostate brachytherapy: A prospective study. INT J RAD ONCOL BIOL PHYS 2002;52:712-719.

Catalona WJ, Han M: Definitive therapy for localized prostate cancer - An overview, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 95, p 2941.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in

Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 100, p 3026.

Question 117 of 150
A six-year-old girl has a pelvic fracture from a MVC. Her perineal examination shows blood at the vaginal introitus. A CT scan with contrast shows normal kidneys and a pelvic hematoma. The next step is:

A: urethral catheter.
B: VCUG.
C: retrograde urethrogram.
D: cystoscopy, vaginoscopy and cystogram.
E: suprapubic tube bladder drainage.

D: "cystoscopy, vaginoscopy and cystogram." was the correct answer.

This girl is at risk for having sustained a significant urethral, vaginal, rectal, or bladder injury that may be underestimated by initial examination. Examination under anesthesia is essential to evaluate the extent of injury. Cystography is also needed to rule-out a bladder injury. Retrograde urethrography is unnecessary and technically difficult in a female. Suprapubic tube placement would not be necessary before the urethra is evaluated. A VCUG would be helpful if a catheter can be passed easily, however, will not rule-out a vaginal injury. A urethral catheter may be able to be passed in a very cooperative patient, however, the possibility of a vaginal injury would still need to be evaluated. If an unrecognized bladder neck or urethral injury is found, immediate reconstruction will be necessary to avoid complications such as pelvic abscess, urinary fistulization, and increased risk of incontinence.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, pp 3943-3944.

O'Neill JA, Grosfeld, JL, Fonkalsrud EW, et al (eds): Abdominal and genitourinary trauma, in PRINCIPLES OF PEDIATRIC SURGERY, ed 2. St. Louis, Mosby, 2004 chap 13, p 174.

Lynch JM, Gardner MJ, Albanese CT: Blunt urogenital trauma in prepubescent female patients: More than meets the eye. PED EMER CARE 1995;11:372.

Question 118 of 150
The threshold for hematuria that merits further evaluation is:

A: urine dipstick positive for hemoglobin.
B: at least 1 RBC/hpf.
C: 3 or more RBC/hpf.
D: > 10 RBC/hpf.
E: gross hematuria.

C: "3 or more RBC/hpf." was the correct answer.

According to the American Urological Association Best Practice Policy on Asymptomatic Microscopic Hematuria in Adults, the recommended definition of microscopic hematuria is 3 or more red blood cells per high-power field on microscopic evaluation of urinary sediment from two of three properly collected urinalysis specimens.

Grossfeld GD, Wolf JS Jr, Litwin MS, et al: Asymptomatic microscopic hematuria in adults: Summary of the AUA best practice policy recommendations. MICROSCOPIC HEMATURIA BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2001. http://www.aafp.org/afp/20010315/1145.pdf

Question 119 of 150
A 55-year-old obese man undergoes a radical cystoprostatectomy. A Mainz pouch (cecum-terminal ileum neobladder) is performed, but the pouch will not reach to the urethral stump due to mesenteric tension. The next step is:

A: divide the ileocolic artery.
B: divide the right colic artery.
C: divide the middle colic artery.
D: convert to a continent cutaneous diversion.
E: create an ileal loop conduit.

B: "divide the right colic artery." was the correct answer.

Occasionally, surgeons will encounter difficulty approximating an orthotopic urinary diversion to the urethral stump in a patient with a particularly deep pelvis. When the pouch includes the right colon, the surgeon may obtain additional length on the mesentery by dividing the right colic artery. This artery, along with the

ileocolic, middle colic, left colic, sigmoid artery and the three hemorrhoidal arteries make up the arc of Drummond and provide considerable leeway when mobilizing the colon. The right colic artery often arises off the superior mesenteric artery, but can sometimes be seen arising directly from the middle colic or ileocolic artery. Division of the right colic artery can be performed safely and will often result in greater length on the mesentery of a neobladder that includes the cecum or distal right colon. Division of the ileocolic artery will result in ischemia and/or necrosis of the neobladder and division of the middle colic artery will not result in any additional length on the mesentery and may also compromise the bowel anastomoses. Alternate diversions should not be considered until all possible options have been exhausted.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, p 2536.

Question 120 of 150
Paternity potential in males with spina bifida correlates positively with:

A: serum testosterone level.
B: sacral neurologic level of lesion.
C: reflexogenic erections.
D: shunt-dependent hydrocephalus.
E: glans penis sensation.

B: "sacral neurologic level of lesion." was the correct answer.

Studies on sexual function in males with spina bifida have demonstrated that paternity is associated with an L5 or sacral neurologic level. This neurologic level was present in 80% of patients who fathered children. This is in contrast to bladder function, which does not correlate well to the neurologic level of the lesion. The ambulatory status and presence of a ventriculoperitoneal shunt are other important factors associated with paternity. Serum testosterone levels are usually normal. Reflexogenic erections are present in the majority of spina bifida patients and are not predictive of paternity.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3639-3640.

Question 121 of 150
The lithotriptor generator with the largest focal zone is:

A: electrohydraulic.
B: piezoelectric.
C: electromagnetic.
D: microexplosive.
E: electroconductive.

A: "electrohydraulic." was the correct answer.

Electrohydraulic, or spark gap lithotriptors have the largest focal zones, and is likely the reason for their widespread acceptance. Piezoelectric devices have small focal zones, with wide apertures of entry, thus minimizing patient discomfort. Electromagnetic machines have smaller focal zones, but typically achieve higher pressures. Microexplosive lithotriptors have not been widely accepted due to the requirement for lead azide pellets, and electroconductive machines are currently not utilized but retained smaller focal zones. Ease of targeting with larger focal zones may lead to improved efficacy.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, pp 1465-1469.

Question 122 of 150
A 58-year-old man is to undergo TUR and immediate postoperative instillation of 40 mg Mitomycin C for recurrent low grade multifocal Ta urothelial carcinoma of the bladder. At the time of resection, a 2-3 cm region of perivesical fat is seen in the resection bed. The next step is:

A: administer Mitomycin C.
B: administer Mitomycin C, leave indwelling catheter.
C: withhold Mitomycin C, leave indwelling catheter.
D: administer Adriamycin, leave indwelling catheter.
E: wait 48 hours, administer Mitomycin C.

C: "withhold Mitomycin C, leave indwelling catheter." was the correct answer.

The use of immediate postoperative Mitomycin C has been shown to significantly reduce the risk of recurrence following resection of a bladder tumor. While the mechanism of action is not entirely clear, it is felt to be due to destruction of floating tumor cells and/or residual foci of cancer within the resection bed. At the time of transurethral resection, exposed fat within the resection bed is indicative of extraperitoneal perforation. The degree of extravasation can often be estimated at the time of resection by visual inspection, or it may require a cystogram. In cases of extravasation, administration of Mitomycin C is not advisable due to the risk of local necrosis and bladder contracture. In this case, it would be advisable to simply place a catheter and withhold the Mitomycin C.

Taneja SS, Chan S. Complications of intravesical chemotherapy, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY: PREVENTION AND MANAGEMENT. Philadelphia, WB Saunders Co, 2001, pp 85-87.

Question 123 of 150
A three-month-old boy underwent left dismembered pyeloplasty. An ultrasound nine months postoperatively demonstrates worsening hydronephrosis and severe cortical thinning. A renal scan demonstrates the left kidney to contribute 22% of total renal function, and T1/2 > 40 minutes. Retrograde pyelography demonstrates a 2 cm stricture at the anastomosis and an intrarenal pelvis. The next step is:

A: retrograde endopyelotomy.
B: antegrade endopyelotomy.
C: repeat dismembered pyeloplasty.
D: ureterocalicostomy.
E: nephrectomy.

D: "ureterocalicostomy." was the correct answer.

The infant has a failed pyeloplasty. In redo repairs, one must assess the anatomy carefully to determine whether a redo dismembered technique can be performed. When a long segment of stricture is present with an intrarenal pelvis, a repeat dismembered repair may not be technically feasible and/or will be at high risk for

failure. Ureterocalicostomy is the most appropriate choice since it bypasses the need for an anastomosis to the pelvis. With this technique, it is important to remove as much parenchyma around the lower pole calyx as possible to allow a widely patent tension free anastomosis. If a large and redundant extrarenal pelvis were present, one could consider a spiral flap repair. Endoscopic manipulations in a one year old male infant with a long stricture is not efficacious. With 22% function nephrectomy is not appropriate.

Carr MC, El-Ghoneimi A: Anomalies and surgery of the ureteropelvic junction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 115, p 3381.

Ellsworth PI, Walker RD, Elder JS: Management of the failed pyeloplasty. AUA UPDATE SERIES 1997, volume 16, lesson 17, pp 130-135.

Question 124 of 150
Roux-en-Y gastric bypass increases the risk of kidney stones by which change in the urine:

A: increased oxalate and decreased citrate.
B: increased oxalate and increased calcium.
C: decreased volume and increased calcium.
D: decreased volume and increased sodium.
E: decreased citrate and increased sodium.

A: "increased oxalate and decreased citrate." was the correct answer.

After a Roux-en-Y gastric bypass, the primary abnormalities noted that predispose to stone formation include low urine volume, high urine oxalate, and low urine citrate. Urinary sodium and calcium decrease after surgery. Urine volumes are low for the first year following gastric bypass due to the small stomach capacity resulting in decreased oral intake. High urinary oxalate is reflective of the fat malabsorptive component of the surgery which results in saponification of calcium thereby leading to increased oxalate absorption from the gut.

Duffey BG, Pedro RN, Makhlouf A, et al: Roux-en-Y gastric bypass is associated

with early increased risk factors for development of calcium oxalate nephrolithiasis. JACS 2008;206:1145-1153. Epub 2008 Apr 14.

Question 125 of 150
The most common adverse event associated with sorafenib in the treatment of metastatic RCC is:

A: hand-foot skin reactions.
B: cardiac ischemia.
C: hemorrhage.
D: neuropathy.
E: joint pain.

Question 125 of 150
The most common adverse event associated with sorafenib in the treatment of metastatic RCC is:

A: hand-foot skin reactions.
B: cardiac ischemia.
C: hemorrhage.
D: neuropathy.
E: joint pain.
A: "hand-foot skin reactions." was the correct answer.

Sorafenib is an oral agent used for the treatment of advanced RCC. It was approved by the FDA in December, 2005. It is a small molecule inhibitor of Raf kinase and VEGF receptor kinase. In a large, randomized study, sorafenib showed improved progression free survival. Side effects of sorafenib, as compared to placebo included hand-foot skin reactions (40% vs 16%), hemorrhage (15.3% vs. 8.2%), and hypertension (16.9% vs. 1.8%). Neuropathy and joint pain were relatively uncommon. Most of the hand-foot skin reactions were mild and occurred within the first six weeks of treatment. Management of hand-foot reactions includes administration of topical agents for symptomatic relief, temporary treatment interruption or dose modification for moderate skin reactions and permanent discontinuation in severe cases.

Escudier B, Szczylik C, Eisen T, et al: Randomized phase III trial of the raf kinase and VEGFR inhibitor sorafenib (BAY 43-9006) in patients with advanced renal cell carcinoma. PROC AM SOC CLIN ONCOL 2005;23:1093.

Question 126 of 150
When obtaining percutaneous access to a continent urinary reservoir for removal of calculi, the most important factor to consider is:

A: stone composition.
B: stone volume.
C: stone number.
D: adjacent structures.
E: type of diversion.

D: "adjacent structures." was the correct answer.

It is important to select the ideal puncture site for percutaneous access into a continent reservoir to avoid injury to adjacent structures. Computed tomography or ultrasonography can be used to guide access to avoid injury to adjacent bowel. Stone volume and number may influence the decision to proceed with endoscopic versus open access. Stone composition and type of diversion does not impact the outcome of the percutaneous procedure.

L'Esperance JO, Sung J, Marguet C, et al: The surgical management of stones in patients with urinary diversions. CURR OPIN UROL 2004;14:129-134.

Question 127 of 150
The benefit of hypertonic saline resuscitation after severe multitrauma is due to:

A: reduced inflammatory response.
B: reduced acidosis.
C: inhibited angiotensin II release.
D: restored intravascular volume.
E: repleted third space fluid loss.
A: "reduced inflammatory response." was the correct answer.

After shock or trauma, fluid resuscitation has been aimed at restoring intravascular volume and repletion of "third-space" fluid shifts. The colloid-crystalloid debate has focused on these end points. Although these arguments are most relevant immediately after injury when death is due to exsanguination, recent data has shown that early fluid resuscitation modifies the inflammatory response that leads

to multiple organ failure and late death.

Experimental observations showed that hypertonic saline (HTS) can affect the immune response. Specifically, HTS can down-regulate the expression of polymorphonuclear cell adhesion molecules, improve microvascular flow, and preserve organ function. It has no direct effect on pH or angiotensin II. Interestingly, Lactated Ringer solution has been shown to be proinflammatory and could potentially aggravate the postinjury inflammatory response.

Bulger EM, Jurkovich GJ, Nathens AB, et al: Hypertonic resuscitation of hypovolemic shock after blunt trauma: a randomized controlled trial. ARCH SUR 2008;143:139-148.

Question 128 of 150
A 35-year-old alcoholic man with renal insufficiency undergoes a left radical orchiectomy for a NSGCT. His preoperative AFP was 100 IU/ml and beta-hCG was 85 mlU/ml. Two weeks later, AFP is 2 IU/ml and beta-hCG is 15 mlU/ml. His metastatic evaluation is otherwise negative. The most likely explanation for the marker elevation is:

A: hepatic dysfunction.
B: renal insufficiency.
C: hypogonadism.
D: normal marker decline.
E: residual yolk sac elements.

C: "hypogonadism." was the correct answer.

The rate of tumor marker decline relative to expected half-life after treatment has been proposed as a prognostic index. The half life of AFP is five days. Beta-hCG is one to two days. Patients whose values decline according to half-life after treatment appear more likely to be disease free than those whose marker decline is slower or whose markers never return to normal levels. However, there are non-malignant causes of persistently elevated levels of both AFP and beta-hCG. Liver damage secondary to drugs, hepatitis and alcohol abuse may lead to an elevated AFP level. Beta-hCG may remain persistently elevated due to nonmalignant causes such as hypogonadism and marijuana use. In this patient, the most likely etiology is hypogonadism induced by alcoholism. This results in altered testis-pituitary

feedback and secondary elevation of LH which cross-reacts with beta-hCG measurement, leading to false elevation of beta-hCG. HCG is not produced by yolk sac elements, but rather by syncytiotrophoblastic cells. Clearly, every effort should be make to exclude all false positive causes of tumor marker elevation before subjecting patients to unnecessary treatment.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 907-908.

Question 129 of 150
A six-year-old boy with nocturnal enuresis has been treated with imipramine. He took an excessive dose last night and is lethargic this morning. The best plan is:

A: observation.
B: cardiac monitoring.
C: Kayexalate enema.
D: hemodialysis.
E: atropine.

B: "cardiac monitoring." was the correct answer.

Tricyclic antidepressants (TCAs) (e.g. imipramine) can cause toxicity at doses of 10-20 mg/kg. A 50 mg/kg dose is likely to be fatal. ICAs are absorbed in the small bowel and have antimuscarinic actions. Tissue levels, especially in myocardium, are much higher than serum levels. Toxic effects are central and peripheral antimuscarinic actions (amine pump blockage that enhances catecholamine actions) occur as well. Emetics will be too late in this case, the urgent need is cardiac monitoring. Hemodialysis will take more than an hour to institute and is an incorrect priority. Kayexalate will not help. Atropine is contraindicated. Physostigmine, used in the past, doesn't help with the cardiac effects of TCAs and may cause its own rhythm disturbances.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3619-3624.

Question 130 of 150
Acetohydroxamic acid:

A: is a urease inhibitor.
B: reduces urinary oxalate.
C: is a calcium chelating agent.
D: converts cystine to cysteine.
E: converts glycoxalate to glycine.

A: "is a urease inhibitor." was the correct answer.

Acetohydroxamic acid (Lithostat), a urease inhibitor, may reduce the urine saturation of struvite and therefore retard stone formation. When given as an oral dose of 250 mg three times per day following complete stone removal, acetohydroxamic acid has been shown to prevent recurrence of new stones and to inhibit the growth of stones in patients with chronic urea-splitting infections. Complete blood counts should be monitored every three months due to the risk of hemolytic anemia with this medication.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, p 1425.

Question 131 of 150
A 60-year-old man has a rising PSA following external beam radiotherapy for prostate cancer. His PSA nadir is 0.5 ng/ml, and 1.1 ng/ml and 1.6 ng/ml at 12 and 18 months, respectively. The next step is:

A: observation.
B: prostate biopsy.
C: lymph node dissection.
D: salvage cryoablation.
E: hormonal ablation.

A: "observation." was the correct answer.

PSA bounce is described as a rise in serum PSA levels, following radiotherapy, over one or two consecutive measurements followed by a decline to 'pre-bounce' levels. The bounce phenomenon is observed in 12-38% of patients following radiotherapy. The American Society for Therapeutic Radiology and Oncology (ASTRO) criteria for relapse following prostate cancer therapy is three consecutive rises in serum PSA from a nadir level of at least 0.5 ng/ml. In this patient, the presence of two rises following a nadir is possibly consistent with PSA bounce. The patient has not met the criteria (PSA > 2 ng/ml over nadir) for relapse, and as such, therapeutic intervention for recurrence is not warranted. Likewise, further evaluation with biopsy or lymph node sampling is not warranted until relapse is confirmed.

Rosser CJ, Kuban DA, Levy LB, et al: Prostate specific antigen bounce phenomenon after external beam radiation for clinically localized prostate cancer. J UROL 2002;168:2001-2005.

Hanlon AL, Pinover WH, Horwitz EM, Hanks GE: Patterns and fate of PSA bouncing following 3D-CRT. INT J RAD ONCOL BIOL PHYS 2001;50:845-849.

Catalona WJ, Han M: Definitive therapy for localized prostate cancer - An overview, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 95, p 2940.

Question 132 of 150
An eight-year-old boy has persistent urinary incontinence following newborn resection of a PUV. This is most likely due to:

A: detrusor instability.
B: vesicoureteral reflux.
C: non-compliant bladder.
D: incompetent bladder neck.
E: damaged external urethral sphincter.

A: "detrusor instability." was the correct answer.

Urinary incontinence following surgery for a PUV is common. Although in some instances this is secondary to the primary surgery in the urethra or bladder neck,

the most common finding is bladder dysfunction. Three patterns of bladder dysfunction have been identified in boys with valves: myogenic failure, detrusor overactivity, and decreased compliance with a small bladder. In prepubertal boys with persistent incontinence, bladder instability from overactivity is the dominant pattern.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3597.

Question 133 of 150
A 42-year-old woman is undergoing a laparoscopic hysterectomy for dysmenorrhea and menorrhagia. An inadvertent 3 cm cystotomy is made at the level of the vaginal cuff. A urological consult is requested after the uterus is removed. In addition to repair, it is best to:

A: use a flap interposition.
B: place suprapubic tube.
C: perform cystoscopy.
D: perform bilateral retrograde pyeloureterograms.
E: utilize an open approach.

D: "perform bilateral retrograde pyeloureterograms." is correct.

Even though it may appear that only the bladder is injured, concomitant ureteral injuries must be ruled out at the time of the consult. The majority of ureteral injuries are not diagnosed intraoperatively. Laparoscopic hysterectomy is associated with higher incidence of ureteral injuries compared to open abdominal or vaginal approaches. To ensure that the ureters have not been also inadvertently divided, cystoscopy with bilateral pyeloureterograms should be performed prior to closure of the cystotomy. The other choices are reasonable to consider as part of the cystotomy closure depending on the clinical situation. However, to prevent the situation of a missed ureteral injury, it is best to perform a cystoscopy with bilateral retrograde pyeloureterograms.

Ostrzenski A, Radolinski B, Ostrzenska KM: A review of laparoscopic ureteral injury in pelvic surgery. OBSTET GYNECOL SURV 2003;58:794-799.

Harkki-Siren P, Sjoberg J, Tiitinen A: Urinary tract injuries after hysterectomy. OBSTET GYNECOL 1998;92:113-118.

Question 134 of 150
When performing a 7.5 MHz transrectal ultrasound on a 125 gm prostate, better imaging of the anterior transition zone may be achieved by:

A: decreasing gain.
B: increasing frequency.
C: decreasing frequency.
D: utilizing color Doppler.
E: utilizing power Doppler.

C: "decreasing frequency." was the correct answer.

In a large prostate, visualization of the anterior prostate is impaired by the depth of penetration required due to the anterior-posterior diameter of the gland. Reduction in frequency will increase the depth of penetration of the ultrasound, but will reduce the resolution of the image. In improving visualization of the anterior transition zone, the ability to identify peripheral hypoechoic lesions will be reduced. Reduction in gain will further decrease sensitivity of detecting abnormalities, but will not improve depth of penetration. Neither color Doppler nor power Doppler will improve visualization of the anterior gland if not easily visualized on grey-scale image.

Bhayani SB, Siegel CL: Urinary tract imaging: Basic principles, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 4, p 122.

Question 135 of 150
The posterior surface of the kidney is adjacent to the:

A: quadratus lumborum muscle and diaphragm.
B: psoas and latissimus dorsi muscles.
C: diaphragm and psoas muscle.
D: transversus abdominis and psoas muscles.
E: paraspinous and intercostal muscles.

A: "quadratus lumborum muscle and diaphragm." was the correct answer.

The diaphragm extends around the posterior aspect of the kidney. The anteromedial surface of the kidney is adjacent to the psoas major but the posterior surface lies adjacent to the quadratus lumborum. The transversus abdominus muscle is more ventral.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, p 11.

Question 136 of 150
A 32-year-old HIV positive man has right epididymitis. The next steps are urethral swab for Gram stain and culture or urine PCR, empiric therapy and:

A: syphilis serology.
B: hepatitis B serology.
C: hepatitis C serology.
D: percutaneous epididymal biopsy.
E: culture of expressed prostatic secretions.

A: "syphilis serology." was the correct answer.

Syphilis in the United States is a concern especially among HIV patients. Approximately 2% of screened men with HIV have positive syphilis serology.

U.S. Preventive Services Task Force (USPSTF) recommends that men at increased risk should be screened for HIV and syphilis. Persons diagnosed with other sexually transmitted infections (i.e., chlamydia, gonorrhea, genital herpes simplex, human papilloma virus, and HIV) may be more likely than others to engage in high-risk behavior, placing them at increased risk for syphilis. Screening tests for syphilis include nontreponemal tests (VDRL or RPR) followed by confirmatory fluorescent treponemal antibody absorbed (FTA-ABS) or T. pallidum particle agglutination (TP-PA).

For epididymitis in sexually active men aged < 35 years, the CDC recommends: (1) urethral Gram stain, (2) urethral culture or nucleic acid amplification (PCR) test for N. gonorrhea and C. trachomatis, (3) examination of first-void uncentrifuged urine for leukocytes if the urethral Gram stain is negative, and (4) Syphilis

serology and HIV counseling and testing. Empiric therapy with Ceftriaxone 250 mg IM in a single dose plus Doxycycline 100 mg orally twice a day for ten days is indicated before laboratory test results are available. Culture of the expressed prostatic secretions and percutaneous epididymal biopsy are not recommended.

Meyers D, Wolff T, Gregory K, et al: USPSTF recommendations for STI screening. AM FAM PHY. 2008;77:819-824.

MMWR. Sexually Transmitted Diseases Treatment Guidelines, 2006. August 4, 2006/ 55 (RR11); Gonococcal infections.

Centers for Disease Control and Prevention. Sexually transmitted diseases treatment guidelines 2002. MMWR 2002;51(No. RR-6): p 52.

Phipps W, Stanley H, Kohn R, Stansell J, Klausner JD: Syphilis, chlamydia, and gonorrhea screening in HIV-infected patients in primary care, San Francisco, California, 2003. AIDS PATIENT CARE STDS 2005;19:495-498.

Question 137 of 150
A 50-year-old man undergoes a radical orchiectomy, and is reported to have a pure seminoma. Serum beta-hCG is 342 mlU/ml, and AFP is 123 IU/ml prior to orchiectomy. CT scan reveals a 7 cm para-aortic mass. After four cycles of chemotherapy, the para-aortic mass is 1.8 cm and serum markers are normal. The next step is:

A: observation.
B: retroperitoneal radiation.
C: additional chemotherapy.
D: RPLND.
E: positron emission tomography (PET) scan.

D: "RPLND." was the correct answer.

The production of AFP is limited to cells of the cytotrophoblast. In cases of testicular germ cell tumor, the presence of serum AFP confirms the tumor to be at least partially of nonseminomatous origin due to the presence of yolk sac elements. In this case, despite the fact that the histologic evaluation of the primary tumor demonstrates pure seminoma, the cancer must be treated as a NSGCT. In patients with residual mass following chemotherapy for metastatic NSGCT, a RPLND is indicated unless the mass shrinks to < 10% of its original size at the time of marker

normalization. PET scan does not accurately characterize the nature of residual masses following chemotherapy as they may represent residual cancer, teratoma, or necrosis/fibrosis only. Given the serum marker normalization, additional chemotherapy is not necessary.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 906, 920-922.

Question 138 of 150
A two-year-old girl has a febrile UTI. An ultrasound is normal, but a VCUG demonstrates left grade 4 VUR. There is a compound upper pole calyx and simple calyces throughout the rest of the kidney. A DMSA scan of the left kidney at one week and nine months after the infection would most likely show:

A: One Week: normal, Nine Months: normal.
B: One Week: normal, Nine Months: upper pole defect.
C: One Week: upper pole defect, Nine Months: upper pole defect.
D: One Week: multiple defects, Nine Months: normal.
E: One Week: multiple defects, Nine Months: multiple defects.

C: "One Week: upper pole defect, Nine Months: upper pole defect." was the correct answer.

Renal injury after a UTI in a patient with VUR will usually occur at the site of intrarenal reflux, a condition that is associated with compound calyces. Conversely, injury is less likely in other areas of the kidney, where the calyceal configuration is simple and in which there is not likely to be intrarenal reflux. Injury will occur at the time of the first infection in susceptible areas, but may not be permanent. In the case of early aggressive antibiotic therapy, a temporary injury may heal and a permanent scar may be avoided with a return to normal on a DMSA scan at nine months.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, pp 3256-3258.

Question 139 of 150
A 72-year-old man with localized prostate cancer and diabetes mellitus takes an oral hypoglycemic as his only medication. He has a chronic serum creatinine of 2.1 mg/dl, with a normal upper tract on renal ultrasound, and a normal urinalysis. Which medication, if any, should be started prior to robotic radical prostatectomy:

A: none.
B: captopril 50 mg po bid.
C: enoxaparin 40 mg subcutaneous qd.
D: metoprolol 50 mg po bid.
E: ciprofloxacin 500 mg po bid.

D: "metoprolol 50 mg po bid." is correct.

The patient is undergoing intermediate risk surgery with two intermediate clinical predictors of increased perioperative cardiovascular risk, diabetes, and renal insufficiency. The 2006 American College of Cardiology/American Heart Association practice guidelines recommend perioperative beta-blockade in these cases to reduce the incidence of myocardial infarction, heart failure or death. An angiotensin converting enzyme inhibitor such as captopril does not substitute for a beta-blocker, and while deep venous thrombosis prophylaxis with enoxaparin is indicated preoperatively, it is not necessary to begin dosage prior to surgery. In the absence of urinary tract infection, a fluoroquinolone will not lend additional benefit.

The American College of Cardiology/American Heart Association Task Force on Practice Guidelines. ACC/AHA 2006 guideline update on perioperative cardiovascular evaluation for noncardiac surgery: Focused update on perioperative beta-blocker therapy. J AM COLL CARDIOL 2006;47:2343-2355.

Question 140 of 150
During surveillance of a 2.3 cm solid renal mass, the most reliable indicator of malignancy on imaging is:

A: T2 hyperintensity.
B: growth rate.
C: calcification.
D: location.
E: absence of fat.

B: "growth rate." was the correct answer.

During observation of small renal masses, serial imaging is utilized to monitor tumor progression over time. While the likelihood of tumor increase with larger size of the tumor, the size and shape of the tumor cannot generally distinguish a benign from a malignant renal tumor. The presence of fat in the tumor noted on imaging confirms the lesion to be an angiomyolipoma, but its absence does not allow the determination of the lesion to be malignant. Growth can occur in both benign and malignant solid renal tumors, however, of the choices listed, the best indicator of a malignancy is the rate of tumor growth on serial radiographic evaluations. To date, there is no radiographic feature that can reliably distinguish benign versus malignancy. Tumors with rapid enlargement are most likely to represent cancer. However, masses with zero or very minimal growth rates can be malignant. Larger tumors in particular may exhibit faster growth rates and are more likely to metastasize.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, pp 1618-1619.

Question 141 of 150
A ten-year-old boy has a perineal "butterfly" hematoma following a straddle injury. This suggests rupture of the:

A: tunica albuginea.
B: corpus spongiosum.
C: corpus cavernosum.
D: posterior urethra.
E: Colles' fascia.
B: "corpus spongiosum." was the correct answer.

Rupture of the corpus spongiosum and anterior urethra will be manifest by a perineal "butterfly" hematoma, limited by Colles' fascia. The corpora cavernosa, tunica albuginea, and posterior urethra are unlikely to be involved in a straddle injury. Posterior urethral injuries occur above the pelvic diaphragm are usually associated with a pelvic fracture, and not as a consequence of a straddle injury.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 2, p 39.

Question 142 of 150

Contrast-induced nephropathy in patients with renal insufficiency is best prevented by:

A: N-acetylcysteine.
B: natriuretic hormone.
C: hydration.
D: furosemide.
E: endothelin antagonist.

C: "hydration." was the correct answer.

Radiocontrast media leads to a reversible decline in renal function in 10-30% of high risk patients, including diabetics and those with renal insufficiency. Administration of fluids before and after contrast media reduces the incidence of contrast-induced nephropathy, although the exact fluid regimen, including the type of fluid and the means of administration (oral versus IV) has not been clarified. N-acetylcysteine along with peri-procedural hydration can prevent contrast nephropathy; however, because of the inconsistent results, this agent is not routinely recommended for the prevention of contrast induced nephropathy. The other agents listed will not prevent contrast-induced nephropathy.

Barrett BJ, Parfrey PS: Clinical practice. Preventing nephropathy induced by contrast medium. NEJM 2006;354:379-386.

Question 143 of 150
A 67-year-old man undergoes TURBT for a large muscle-invasive bladder tumor along the trigone. Physical exam reveals a large, fixed bladder mass. CT scan reveals no lymphadenopathy, but severe bilateral hydroureteronephrosis is present. His serum creatinine is 2.5 mg/dl following placement of bilateral percutaneous nephrostomy tubes. The next step is:

A: carboplatin-based chemotherapy and XRT.
B: neoadjuvant cisplatin-based chemotherapy.
C: neoadjuvant carboplatin-based chemotherapy.
D: radical cystectomy.
E: radical cystectomy and adjuvant cisplatin-based chemotherapy.

C: "neoadjuvant carboplatin-based chemotherapy." was the correct answer.

Muscle-invasive bladder cancer associated with bilateral hydronephrosis has a poor prognosis, as this portends at a minimum extravesical disease. While there is some debate as to whether neoadjuvant vs. adjuvant chemotherapy is preferable in patients with cT3N0 bladder cancer, most clinicians agree that neoadjuvant chemotherapy is the preferred approach. Bilateral percutaneous nephrostomy tubes are advisable to minimize nephrotoxicity associated with chemotherapy. In addition, the chemotherapeutic regimen administered in patients with renal insufficiency is modified and often carboplatin is substituted for cisplatin. Bladder-sparing protocols, while occasionally acceptable in patients with muscle-invasive disease, are contraindicated in patients with hydronephrosis.

Schoenberg MP, Gonzalgo ML: Management of invasive and metastatic bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 77, p 2473.

Question 144 of 150
A 52-year-old man has lethargy and weakness. His serum laboratory values are: sodium 115 mEq/l, potassium 4.5 mEq/l, chloride 80 mEq/l, bicarbonate 23 mEq/l, BUN 8 mg/dl, creatinine 0.8 mg/dl, uric acid 2.9 mg/dl (normal 3.6 - 8.5 mg/dl). The most likely diagnosis is:

A: Addison's disease.
B: congestive heart failure.
C: cirrhosis with ascites.
D: inappropriate ADH secretion.
E: chronic diarrhea.

D: "inappropriate ADH secretion." is correct.

All of the listed conditions can cause hyponatremia but the syndrome of inappropriate antidiuretic hormone secretion (SIADH) is the only one associated with hypouricemia and a normal serum BUN and creatinine. SIADH is due to sustained endogenous over-production of ADH. Patients with SIADH reach a steady state in which body water is expanded by water retention but in which natriuresis prevents edema. Relative volume expansion results in an increased GFR, tubular sodium wasting and reduced net tubular absorption of creatinine and uric acid. Volume contracted states such as Addison's disease and chronic diarrhea are associated with hyperuricemia and pre-renal azotemia. In congestive heart failure and cirrhosis, serum uric acid is in the high normal range and the BUN and

creatinine are often elevated.

Kokko JP: Disorders of fluid volume, electrolyte and acid-base balance, in Bennett JC, Plum F (eds): CECIL TEXTBOOK OF MEDICINE. Philadelphia, WB Saunders Co, 1999, pp 525-551.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1146-1149.

Question 145 of 150
A 23-year-old woman with cystic fibrosis takes nutritional supplements, Vitamin C, and antibiotic prophylaxis to prevent respiratory infections. She has hyperoxaluria and recurrent calcium oxalate stones. The most likely cause of her stones is:

A: Vitamin C therapy.
B: reduction of intestinal Oxalobacter formigenes.
C: high calcium diet.
D: cystic fibrosis-associated ileal absorption disorder.
E: dietary glycine excess.

B: "reduction of intestinal Oxalobacter formigenes." was the correct answer.

Chronic antibiotic use may reduce normal levels of Oxalobacter formigenes in the intestine. This anaerobe metabolizes as much as 50% of ingested oxalate. High calcium diets are associated with decreased oxalate absorption. Few cystic fibrosis patients have ileal absorption disorders. Vitamin C and glycine, while associated with oxalate metabolism, are unlikely to increase urinary levels significantly. An emerging treatment for reduced intestinal Oxalobacter formigenes is probiotics.

Hoppe B, von Unruh G, Laube N, et al: Oxalate degrading bacteria: New treatment option for patients with primary and secondary hyperoxaluria? UROL RES 2005;33:372-375.

Question 146 of 150
A 64-year-old man undergoes a six core biopsy for a PSA of 5.6 ng/ml. Pathology is a Gleason 6 (3+3) prostate cancer in a single core involving less than 10% of the tissue. The other cores are normal. He prefers active surveillance. The next step is:

A: MRI scan with endorectal coil.
B: initiate finasteride.
C: repeat prostate biopsy with 12 or more cores.
D: check PSA quarterly and repeat biopsy in one year.
E: counsel patient that he is not appropriate for active surveillance.

C: "repeat prostate biopsy with 12 or more cores." was the correct answer.

Active surveillance is a reasonable option for patients with low-risk prostate cancer. Specifically, patients with a Gleason score of 6 or less, PSA below 10 ng/ml and low tumor volume may be appropriate for active surveillance. This patient's risk profile makes him a reasonable candidate for this approach. However, a six-core biopsy is likely inadequate tissue sampling to truly identify indolent disease. Therefore, initiation of active surveillance protocol with quarterly PSA and repeat biopsy in one year is premature and immediate systematic prostate rebiopsy is the next step. Additional imaging, with either bone scan or pelvic CT or MRI scan, is unnecessary in low-risk patients and would be inappropriate in this setting. There is no data supporting the use of finasteride in the management of prostate cancer.

Eastham JA, Scardino PT: Expectant management of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 96, p 2951.

Question 147 of 150
The periurethral prostatic glands in a young man:

A: comprise the bulk of the prostate.
B: comprise a small portion of the prostate.
C: empty into the ejaculatory duct.
D: are derived from the Wolffian duct.
E: are vestigial remnants.

B: "comprise a small portion of the prostate." was the correct answer.

Embryologically the prostate develops from the urogenital sinus during the third fetal month. The prostate develops from mesoderm to form the inner zone while the outer zone develops from endoderm. These zones form concentric rings around the prostatic urethra. Generally speaking the inner zone eventually develops benign prostatic hyperplasia (BPH) and the outer zone is where cancers later form. In younger patients, the periurethral glands within the prostate are not prominent

since BPH has not yet developed.

Roehrborn CB, McConnell JD: Benign prostatic hyperplasia: Etiology, pathophysiology, epidemiology, and natural history, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 86, p 2734.

Question 148 of 150
A 41-year-old woman with endometriosis has intermittent left flank pain, gross hematuria, dysuria, and urgency that coincides with her menstrual cycle. A CT scan reveals mild left ureteral obstruction and no stones. Cystoscopy and cytology are normal. The next step is:

A: tamoxifen.
B: gonadotropin-releasing hormone agonist.
C: flutamide.
D: ureterolysis.
E: bilateral salpingo-oophorectomy.

B: "gonadotropin-releasing hormone agonist." was the correct answer.

Endometriosis of the urinary tract involves the ureter, typically the distal third, in 15-20% of cases. Although most patients with ureteral obstruction associated with endometriosis are asymptomatic, signs and symptoms may occur cyclically and include flank pain, dysuria, urgency, hematuria and frequent urinary tract infections. A trial of hormonal therapy using gonadotropin-releasing hormone agonists (Lupron) or medroxyprogesterone (Danazol) should be initiated for mild symptomatic obstruction when there is good preservation of renal function. For more severe obstruction associated with significant periureteral fibrosis, surgical intervention to correct the obstruction, with or without hysterectomy and bilateral salpingo-oophorectomy, is advisable.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1221.

Question 149 of 150

Osteoporosis in men with prostate cancer undergoing androgen deprivation can be prevented by:

A: weight loss.
B: intermittent androgen deprivation therapy.
C: Vitamin D.
D: calcium.
E: pamidronate (Aredia).

E: "pamidronate (Aredia)." was the correct answer.

Osteoporosis is a well-known side effect of androgen deprivation therapy (ADT) in men with prostate cancer resulting in an increased risk of pathologic fracture and other complications. Urologists need to consider the risk of this complication and try to minimize it in men undergoing ADT. While weight loss is generally good for patients, it has minimal effect in preventing osteoporosis in this patient population. In fact, obesity may be protective to some degree. While intermittent ADT may reduce the amount of osteoporosis, changes in bone density have been seen in men who were on ADT for as little as nine months. Patients who are undergoing ADT should be started on calcium and Vitamin D, as studies have shown deficiencies in these substances in men who receive ADT. However, this will not prevent osteoporosis. To date, only two substances have been shown to prevent osteoporosis in men with prostate cancer undergoing ADT: pamidronate and zoledronic acid. Pamidronate and zoledronic acid are bisphosphonates. The mechanism of action is inhibition of bone resorption via action on osteoclasts or osteoclast precursors. While alendronate can prevent osteoporosis in the general population of male patients, it has not been studied in men on ADT and may not be potent enough to prevent bone loss, although it is often used in this setting.

Holzbeierlein JM, Thrasher JB: Managing side effects of androgen deprivation therapy. AUA UPDATE SERIES 2005, vol 24, lesson 32, pp 277-284.

Question 150 of 150
Dilated Cowper's ducts seen on urethrography are:

A: lateral to the membranous urethra.
B: posterior to the prostatic urethra.
C: anterior to the bulbous urethra.
D: posterior to the bulbous urethra.
E: posterior to the membranous urethra.

D: "posterior to the bulbous urethra." was the correct answer.

Cowper's glands are located on each side of the membranous urethra within the urogenital diaphragm. The duct of each is approximately 2.0 cm long and passes through the urethral opening in the urogenital diaphragm along the posterior aspect of the bulbous urethra and opens into the posterior aspect of the bulb.

Jordan GH, Schlossberg SM: Surgery of the penis and urethra, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 33, p 1030.

Questions::

Transcatheter arterial embolization is an acceptable alternative to pretransplant native nephrectomy for patients with:

Goodpasture syndrome.

severe proteinuria.

VUR.

symptomatic polycystic kidneys.

a history of pyelonephritis.

B

Current indications for pretransplant nephrectomy may include hypertension not controlled by dialysis and medication, persistent renal infection, renal calculi, or renal obstruction. Additional indications include severe proteinuria or polycystic kidneys symptomatic from infection, severe bleeding, or massive enlargement. Of these indications for pretransplant nephrectomy, only severe proteinuria can safely and reliably be managed by pretransplant transcatheter embolization and infarction.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, pp 1300-1301.

Questions::

A 45-year-old hypertensive man with a family history of renal failure is noted to have bilaterally enlarged cystic kidneys, and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complains of marked dysuria. He is admitted with a presumptive diagnosis of pyelonephritis. Urine culture has been sent. Initial antibiotic should be:

gentamicin.

ampicillin.

cephalexin.

ciprofloxacin.

nitrofurantoin.

D

Autosomal dominant polycystic kidney disease is a systemic disease with varied renal pathology including renal cysts, calculi, infection, hemorrhage, and eventual renal insufficiency. Associated gastrointestinal pathology includes hepatic and pancreatic cysts. These patients also have an increased incidence of cerebral artery aneurysms. The cysts eventually become isolated structures and standard empiric antibiotics for pyelonephritis penetrate cysts poorly. Lipid soluble antibiotics are required and include trimethoprim, tetracycline, doxycycline, ciprofloxacin, levofloxacin, and chloramphenicol. Ampicillin, aminoglycosides, cephalosporins, and nitrofurantoin are not lipid soluble and thus are poor choices.

Glassberg KI: Renal dysgenesis and cystic disease of the kidney, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 114, p 3325.

Questions::

A 48-year-old man undergoes radical cystectomy with a Studer-type orthotopic urinary diversion. Three months postoperatively, he complains of frequency and day and nighttime incontinence. Videourodynamics reveal capacity of 300 ml, detrusor pressure at capacity is 10 cm H2O, Valsalva LPP is 130 cm H2O, and PVR is 75 ml. The next step is:

observation.

alpha-blocker therapy.

CIC every two to three hours.

placement of an artificial urinary sphincter.

augmentation of his orthotopic diversion.

A

The length of time postoperatively after orthotopic diversion influences continence results. The reservoir capacity can and does increase over the first six to twelve months and even longer in patients with anti-refluxing afferent limbs (e.g. Studer type). CIC will decrease incontinence but frequent CIC will prevent the reservoir from increasing its capacity over time. Alpha-blocker therapy may relax the proximal urethra and exacerbate incontinence.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 82, pp 2620-2621.

Questions::

In central (pituitary) diabetes insipidus, the nephron segment that contains the most dilute fluid is the:

proximal convoluted tubule.

descending limb of Henle's loop.

ascending limb of Henle's loop.

distal convoluted tubule.

collecting duct.

E

Central diabetes insipidus involves a defect in the production or release of ADH from the hypothalamo-neurohypophyseal system. ADH affects the permeability of the distal tubule and collecting duct to water from the filtrate. With diminished ADH production, the distal tubule and collecting duct reabsorb less water from the filtrate yielding concentrated blood and dilute urine. The most dilute urine will be in the collecting duct.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1141-1146.

Questions::

During PCNL, a collecting system perforation is noted. The first sign of significant extravasation of irrigant into the peritoneal cavity is:

hypotension.

hypercarbia.

abdominal distension.

narrowed pulse pressures.

increasing ventilatory pressures.

D

Narrowed pulse pressures (rise in diastolic pressure) precede difficulty with ventilation, hypercarbia and a rise in central venous pressure. Extravasated irrigant increases abdominal pressure leading to decreased venous return and thus narrowing the pulse pressure. Distension is not appreciated in the prone position until later in the course. Hypotension would signal the possibility of significant hemorrhage. Increasing ventilatory pressures is a later sign when there is significant fluid in the peritoneal cavity and when the patient is returned to the supine position.

Lingeman JE, Matlaga BR, Evan AP: Surgical management of upper urinary tract calculi, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 44, p 1500.

Questions::

A 77-year-old man has a retracted stoma and clear fluid leaking from his midline incision three weeks after radical cystectomy and ileal conduit diversion. Three images from a CT loopogram are shown. The next step is percutaneous pelvic drainage and:

stomal catheter.

loop endoscopy, fulguration.

fascial repair.

stomal revision.

exploration, repair of leak.

A

A delayed urinary leak following urinary reconstruction should lead the clinician to suspect tissue ischemia/necrosis. In these cases, the leak is unlikely to resolve with observation alone. Fascial repair is unnecessary unless signs of dehiscence are present. Maximal drainage of the reconstructed segment is essential in order to minimize the output of the leak. In this case, the CT image demonstrates leakage from the proximal end of the conduit. Given the presence of stomal retraction, catheter drainage of the conduit may decompress the leak. Given the pooling of contrast in the pelvis, a percutaneous drain is also advisable in order to control the fistula, minimize the risk of local abscess, and to protect the fascia from further dehiscence. While this patient may ultimately require stomal revision, it would not be advisable until determining if the leak will heal with conservative therapy. Early exploration and repair is difficult given the intense local inflammatory reaction, and it is likely to result in a high risk of treatment failure given the condition of the local tissues.

Gitlin J, Taneja SS: Complications of Conduit Urinary Diversion, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY:

PREVENTION AND MANAGEMENT. Philadelphia, WB Saunders Co, 2001, p 449.

Questions::

A 27-year-old man states that since a radical orchiectomy for stage A seminoma six months previously, the frequency and quality of his erections have been poor. He received XRT to periaortic nodes. The last treatment was two months after the orchiectomy. His chest x-ray, serum markers, glucose, and testosterone are normal. The next step is:

intracavernosal injection therapy.

sexual dysfunction counseling.

intraurethral alprostadil.

nocturnal penile tumescence studies.

testosterone patch.

B

The patient should be told that during the early months after surgery, depression and loss of vigor are common along with an impaired sense of body image and mood disturbances. Patients cured of testis cancer rarely have persistent emotional disturbances. Sexual drive does not appear to be permanently disrupted by curative therapy. Treatments such as testosterone should be avoided. With time and reassurance, he should recover his normal libido and potency. Concomitant use of PDE5 inhibitors may also be helpful to reestablish confidence. Reassessment of such patients one year after treatment has shown that depression and mood disturbances have usually cleared.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 21, p 742.

Questions::

Sepsis after PCNL best correlates with:

preoperative urine culture.

stone culture.

length of procedure.

blood loss.

collecting system violation.

B

Two recent studies showed that the results of pre-operative voided urine cultures failed to correlate with either stone cultures or renal pelvic urine cultures obtained at the time of ureteroscopy or PCNL. Furthermore, the occurrence of SIRS (systemic inflammatory response syndrome) correlated with positive stone or renal pelvic urine cultures, but not with voided urine cultures. Another recent prospective study found that the occurrence of post-operative SIRS was predicted by stone culture, but failed to correlate with pre-operative urine culture, length of procedure, stone free rate or the use of supra- versus sub-costal access. Although typically the results of a stone culture are not available until at least 48 hours post-operatively, these findings can prompt a change in the choice of antimicrobial coverage in the septic post-PCNL patient.

Mariappan P, Loong CW: Midstream urine culture and sensitivity test is a poor predictor of infected urine proximal to the obstructing ureteral stone or infected stones: A prospective clinical study. J UROL 2004;171:2142-2145.

Mariappan P, Smith G, Bariol SV, et al: Stone and pelvic urine culture and sensitivity are better than bladder urine as predictors of urosepsis following percutaneous nephrolithotomy: A prospective clinical study. J UROL 2005;173:1610-1614.

Margel D, Ehrlich Y, Brown N, et al: Clinical implication of routine stone culture in percutaneous nephrolithotomy--a prospective study. UROL 2005;67:26-29.

Questions::

A 56-year-old man undergoes partial penectomy for pT2 squamous cell carcinoma. Examination reveals no inguinal adenopathy. The primary tumor characteristic most predictive of pathologic lymph node involvement is:

HPV status.

tumor thickness > 5 mm.

lymphovascular invasion.

corpora spongiosum involvement.

corpora cavernosal involvement.

C

In a multi-institutional review, eight different factors including superficial growth pattern, grade,

tumor thickness, involvement of corporal tissue and the urethra increased the likelihood of pathologic lymph node involvement. However, the factor most predictive of lymph node involvement was the presence of lymphatic and/or vascular invasion seen in the primary tumor. Although the presence of human papilloma virus infection in patients with penile cancer is common, there is no correlation to lymph node metastases risk.

Novara G, Galfano A, De Marco V, et al: Prognostic factors in squamous cell carcinoma of the penis. NATURE CLIN PRACTICE UROL 2007;4:140-144.

Questions::

Impaired ammonia production by the kidney will most likely result in:

calcium oxalate renal lithiasis.

decreased urine titratable acidity.

impaired urea excretion.

systemic alkalosis.

metastatic calcification.

B

Ammonia production allows the kidney to rid itself of acid without lowering the pH (titratable acidity). The term titratable acidity refers to the quantity of sodium bicarbonate required to titrate urine back to a pH of 7.40, which is similar to that of blood. Other buffers, such as uric acid and creatinine, contribute to the titratable acidity but only to a minor extent. Hydrogen ion (H%2B) is also secreted through the production of ammonium ion. Ammonia (NH4%2B) is produced from glutamine, primarily by proximal tubular cells. Ammonium excretion can increase significantly during systemic acidosis, which is the key mechanism for secreting excess H%2B because at very low urinary pH, titratable acid cannot increase much unless other ions such as ketoanions are being produced. Lack of ammonia production can result in a systemic acidosis which may be followed by demineralization of bones and uric acid lithiasis.

Shoskes DA, McMahon AW: Renal Physiology and Pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1152.

Questions::

The condition associated with uric acid stone formation is:

insulin resistance.

thiazide therapy.

hyperthyroidism.

immobilization.

proximal RTA.

A

Low urine pH is the most important pathogenetic factor in uric acid stone formation. The mechanism responsible for low urine pH in idiopathic uric acid stone formers is thought to be insulin resistance. Evidence in support of this link includes the findings that over 50%25 of uric acid stone formers are glucose intolerant, a disproportionate number of diabetics have uric acid stones, and there is a strong inverse correlation between urine pH and insulin resistance. In the kidney, insulin stimulates ammonia genesis in proximal renal tubule cells; in insulin resistant states, defective ammonia production and/or excretion results in unbuffered hydrogen ions in the urine and an acid urine. Hyperthyroidism is associated with hypercalciuria and calcium stones. Likewise, Dent's disease, also known as X-linked recessive nephrolithiasis, is a hereditary condition characterized by hypercalciuria, nephrocalcinosis, kidney stones, proteinuria, progressive renal failure, and in some cases, rickets. Crohn's disease is associated with calcium oxalate stones as a result of low urine volume due to dehydration, low urine pH, and hypocitraturia due to metabolic acidosis and hyperoxaluria due to overabsorption of intestinal oxalate. Proximal RTA is not associated with kidney stones. Though thiazide diuretics may increase serum uric acid levels slightly, this does not pose a clinical risk to the patient and is not associated with increased urinary uric acid levels.

Maalouf NM, Cameron MA, Moe OW, Sakhaee K: Novel insights into the pathogenesis of uric acid nephrolithiasis. CURR OPIN NEPHR HYPERTEN 2004;13:181-189.

Langford HG, Blaufox MD, Borhani NO, et al: Is thiazide-produced uric acid elevation harmful? Analysis of data from the Hypertension Detection and Follow-up Program. ARCH INTERN MED 1987;147:645-649.

Taylor EN, Mount DB, Forman JP, Curhan GC: Association of prevalent hypertension with 24-hour urinary excretion of calcium, citrate, and other factors. AM J KID DIS 2006;47:780-789.

Questions::

During radical cystectomy, the cephalad (proximal) limit of an extended pelvic lymph node dissection is the:

aortic bifurcation.

inferior mesenteric artery.

bifurcation of the common iliac artery.

the genitofemoral nerve.

the circumflex iliac vein.

B

Extended pelvic lymph node dissection has been associated with an improved disease specific survival in patients with muscle invasive bladder cancer. Increasing the number of lymph nodes removed at lymph node dissection is associated with improved survival in the setting of both lymph node negative and positive disease. The cephalad limit of the extended pelvic lymph node dissection for bladder cancer is the inferior mesenteric artery. The bifurcation of the common iliac artery is the cephalad limit of dissection of the standard pelvic lymphadenectomy. The circumflex iliac vein and genitofemoral nerve are the caudal and lateral limits of dissection.

Bochner BH, Carver BS, Coleman JA, Eastham JA: Role of lymphadenectomy in genitourinary cancer. AUA UPDATE SERIES 2009; vol 28, lesson 27, pp 251-252.

Questions::

A 38-year-old woman develops incontinence ten days after an abdominal hysterectomy and anterior colporrhaphy for a large cystocele. She complains of leakage that is constant, but increases with an increase in abdominal pressure. The most likely diagnosis is:

overflow incontinence.

transient detrusor overactivity.

stress incontinence.

ureterovaginal fistula.

vesicovaginal fistula.

E

All of these causes are possible. A vesicovaginal fistula is the most likely diagnosis of her incontinence in the setting of recent hysterectomy, and should be investigated even if stress incontinence is present. Both the timing and the nature of her leakage suggest vesicovaginal fistula is responsible. Ureterovaginal fistula may have a similar presentation, but is much less common and should be ruled out prior to repair of a vesicovaginal fistula. Patients with overflow incontinence rarely leak constantly and would be likely to complain of voiding

difficulties.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2323-2324.

Questions::

A 55-year-old diabetic woman has new onset pneumaturia. The next step is:

urinalysis and culture.

abdominal and pelvic CT scan.

cystogram.

barium enema.

cystoscopy.

A

Pneumaturia, the passage of gas in the urine, may be due to a fistula between the intestine and bladder or due to gas-forming UTI. In the latter situation, the microorganism most commonly responsible for cystitis is E. coli. Approximately 60%25 of cases of emphysematous cystitis occur in diabetics. In the current case, a urinalysis and urine culture should be performed first. Additional tests can be performed selectively based on the results of urinalysis and urine culture. Common causes of fistula formation include diverticulitis, regional enteritis and sigmoid cancer.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2253.

Questions::

A 65-year-old man develops lung and liver metastases four months after undergoing a left radical nephrectomy for clear cell carcinoma. Hemoglobin is 8.1 g/dl, Creatinine is 1.3 mg/dl, and his calcium is 13 mg/dl. The therapy most likely to improve survival is:

interferon-alpha.

interleukin 2.

temsirolimus.

sunitinib.

bevacizumab.

C

Temsirolimus is an inhibitor of the mammalian target of rapamycin (mTOR) kinase – this is a component of intracellular signaling pathways involved in growth/proliferation of cells. This medication suppresses angiogenesis and is given as a weekly IV infusion. Patients, such as this patient with three or more of the following "poor risk" features (serum LDH > 1.5 times upper limit of normal, Hgb below lower limit of normal, serum calcium level of more than 10 mg/dl, time from initial diagnosis of renal cell carcinoma to randomization of less than one year, Karnofsky performance of 60 or 70, or metastases in multiple organs), were found to benefit from temsirolimus. Patients who received temsirolimus were 27%25 more likely to survive than those who received interferon-alpha. The other listed agents have not demonstrated a survival advantage in this group of higher risk patients.

Hudes G, Carducci M, Tomczak P, et al: Temsirolimus, interferon alfa, or both for advanced renal cell carcinoma. NEJM 2007;356:2271-2281.

Questions::

The most important factor for successful vesicovaginal fistula repair using an omental interposition graft is:

the length of the omentum.

adequate mobilization of the gastroepiploic vascular pedicle.

adequate mobilization of the omentum by splenectomy.

ligation of the short gastric vessels.

vaginal closure using non-absorbable suture material.

B

In complicated vesicovaginal fistulae, a supravesical approach is appropriate. Since the surrounding areas may be poorly vascularized and fibrotic, omentum will supply good tissue into the area of the fistula. Even if the omentum is short, it can be mobilized to reach the pelvis if the full length of the gastroepiploic arch is mobilized. Turner-Warwick has stated "...even the shortest omental apron will reach the pelvis..." The spleen should not need to be mobilized for this. Nonabsorbable sutures should not be used because they may become exposed to the fistulous area of either the bladder or vagina and cause calculi or persistent fistulae. If the

omentum overlaps the area of the fistulae, the fistulae will usually close even if the suture lines in bladder or vagina are tenuous, break down, or cannot be closed adequately.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, p 2340.

Questions::

A 52-year-old man with erectile dysfunction undergoes videourodynamics for voiding dysfunction. A videourodynamic image, taken early in filling (at the point indicated by dotted line in the urodynamic tracing), is shown. The videourodynamics suggests a diagnosis of:

bladder neck dyssynergia.

cervical spinal stenosis.

Parkinson's disease.

Multiple System Atrophy (Shy-Drager).

multiple sclerosis.

D

The cystogram demonstrates an open bladder neck at rest. The urodynamics tracing shows that there was no detrusor activity at the instant the image was obtained. An open bladder neck at rest in a male is highly suggestive of multiple system atrophy (MSA) in the absence of prior prostate surgery. Although other neurological diseases may result in an open bladder neck at rest, none of these are listed except MSA. Erectile dysfunction is often found in MSA, and this finding in concert with the open bladder neck at rest distinguishes this condition from Parkinson's disease which is often clinically similar in many other respects. Other symptoms of MSA may include other autonomic dysfunctions. Bladder neck dyssynergy would have a closed bladder neck with filling. Cervical spinal stenosis and MS would not typically have an open bladder neck at rest.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2018-2019.

Questions::

When compared to age-matched controls, men treated with etoposide and platinum-based chemotherapy for NSGCT are at increased long term risk of:

systemic infection.

pulmonary fibrosis.

cardiovascular disease.

ototoxicity.

autoimmune disease.

C

The long term toxicity of bleomycin containing chemotherapy regimens includes pulmonary fibrosis however etoposide and platinum does not appear to be associated with this toxicity. There is no chronic increase in risk of systemic infection despite a short term risk of neutropenic sepsis during therapy. Several large scale epidemiologic studies have recently concluded that men treated with either radiation therapy or systemic platinum containing chemotherapy are at significantly increased risk of developing both fatal cardiovascular events as well as secondary malignancy after extended follow-up.

Fossa SD, Gilbert E, Dores GM, et al: Noncancer causes of death in survivors of testicular cancer. J NAT CA INST 2007:99:533-544.

Travis LB, Fossa SD, Schonfeld SJ, et al: Second cancers among 40,576 testicular cancer patients: Focus on long-term survivors. J NAT CA INST 2005;97:1354-1365.

Questions::

Renal blood flow is autoregulated by:

sympathetic nerves.

GFR.

cardiac output.

parasympathetic nerves.

afferent glomerular arteriolar resistance.

E

Autoregulation of GFR and renal blood flow occurs primarily through variations in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as distal tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and GFRs over wide ranges of perfusion pressures.

This autoregulation is present in both innervated and denervated kidneys.

Shoskes DA, McMahon AW: Renal Physiology and Pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, p 1131.

Questions::

In idiopathic calcium oxalate stone formers, Randall's plaques originate:

in the basement membranes of the thin loops of Henle.

within the renal collecting ducts.

in the renal interstitium.

on the urothelial surface of the papilla.

in the vasa recta.

A

In idiopathic calcium oxalate stone formers, crystal deposits composed of calcium phosphate originate within the basement membrane of the thin loops of Henle and enlarge into the surrounding interstitium and vasa recta. The plaques then progress to a subepithelial location where they ultimately erode through the papillary surface and form an anchored site for calcium oxalate stone formation. In patients with calcium oxalate stones of a different etiology, the site of initial crystal formation differs.

Evan AP, Lingeman JE, Coe FL, et al: Randall's plaque of patients with nephrolithiasis begins in basement membranes of thin loops of Henle. J CLIN INVEST 2003;111:607-615.

Questions::

A 55-year-old man had a negative TRUS guided 10-core prostate biopsy two years ago for a PSA of 5 ng/ml. Now his PSA is 7 ng/ml. The next step is:

endorectal MRI scan prior to biopsy.

12-core biopsies.

12-core biopsies including anterior apical horn biopsies.

12-core biopsies including transition zone biopsies.

saturation biopsies with patient under anesthesia.

C

Repeat TRUS directed biopsies for a man with a prior negative biopsy should be at least 12 cores and should include anterior apical horn biopsies. The likelihood of a positive biopsy using this technique is between 35-50%25 and is similar to the yield of saturation biopsy techniques. Transition zone biopsies are also helpful but less critical than anterior apical biopsies. MRI scan can be helpful to direct repeat prostate biopsies but is expensive and is usually not the next step. Anterior apical biopsies can be obtained by transrectal or perineal approach.

Carter HB, Allaf ME, Partin AW: Diagnosis and staging of prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 94, p 2912.

Meng MV, Franks JH, Presti JC Jr, Shinohara K: The utility of apical anterior horn biopsies in prostate cancer detection. UROL ONC 2003;21:361-365.

Presti JC Jr: Repeat prostate biopsy--when, where, and how. UROL ONC 2009;27:312-314.

Questions::

An asymptomatic, 65 kg man with a serum creatinine of 2.0 mg/dl is evaluated for recurrent renal calculi. A 24-hour urinary creatinine measurement is 0.5 gm. This finding is most consistent with:

an incomplete collection.

low protein diet.

hydrochlorothiazide therapy.

resolving renal insufficiency.

unilateral obstruction.

A

As long as renal function is at a steady state, 24-hour excretion of creatinine should be approximately 1 gm per day in a patient of this size. This test is most utilized because it is readily obtainable and has good validity and reproducibility. The daily variability is only about 10%25 and thus a specimen with only 0.5 gm of creatinine in a patient with chronic but stable renal insufficiency suggests an incomplete timed collection.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp

1132-1132.

Questions::

A pregnant woman has a ureteral calculus causing pain. She has failed observation and cannot tolerate a ureteral stent. The best definitive management is:

SWL.

ureteroscopy with EHL.

ureteroscopy with laser lithotripsy.

ureteroscopy with ultrasonic lithotripsy.

laparoscopic ureterolithotomy.

C

Most calculi in pregnant women should be initially managed by observation with stenting reserved for persistent symptoms or infection. When intervention is indicated ureteroscopy using the holmium:YAG laser may be safely performed during pregnancy. SWL is never indicated in pregnancy due to concerns about fetal damage. The peak pressures from EHL are transmitted beyond the probe leading to similar concerns about damage to the fetus. Ultrasonic lithotripsy has the theoretical concern of damage to fetal hearing. Laparoscopic management, while possible is much more invasive than ureteroscopic approaches and may be difficult with a gravid uterus.

Chew BH, Denstedt JD: Ureteroscopy and retrograde ureteral access, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 45, pp 1519-1520.

Questions::

A 68-year-old man with advanced prostate cancer is to receive sipuleucel-T (PROVENGE®). Premedication should include acetaminophen and a(n):

antihistamine.

mineralocorticoid.

glucocorticoid.

benzodiazepine.

opioid.

A

Sipuleucel-T is an active cellular immunotherapy that is a type of therapeutic cancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex-vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colony-stimulating factor (an immune-cell activator). In men with asymptomatic or minimally symptomatic castrate-resistant prostate cancer, a 4.1 month median overall survival was demonstrated compared to placebo. The most common side effects included chills, fatigue, and pyrexia which are common with release of cytokines. The recommended premedications are acetaminophen and an antihistamine. Glucocorticoids and opioids are sometimes given at the time of I.V. chemotherapy but are not indicated at the time of immune therapy. Mineralocorticoids and anxiolytics are not indicated for this immunotherapy.

Kantoff PW, Higano CS, Shore ND, et al: Sipuleucel-T immunotherapy for castration-resistant prostate cancer. NEJM 2010;363:411-422.

Questions::

Calcium reabsorption induced by parathyroid hormone and Vitamin D occurs primarily in the:

proximal convoluted tubule.

collecting duct.

thick ascending loop of Henle.

distal tubule.

proximal straight tubule.

D

The site of action of both parathyroid hormone (PTH) and Vitamin D is on the distal tubule. Calcium resorption occurs in this region of the kidney architecture under hormonal influence. Calcium is reabsorbed in the proximal convoluted tubule as well, but the difference is that it is not under the influence of PTH. The collecting ducts and tubules as well as the loop of Henle are not responsible for calcium resorption and homeostasis.

Shoskes DA, McMahon AW: Renal Physiology and Pathophysiology, in Wein AJ. Kavoussi L, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, WB Saunders Co, 2007, vol 2, chap 35, p 1141.

Questions::

A 48-year-old woman has abnormal retention of isotope in the left renal collecting system on a bone scan that was performed during staging for breast cancer. The next step to evaluate the left kidney is:

serial creatinine measurements.

diuretic renogram.

cystoscopy and retrograde pyelogram.

antegrade pyelogram.

renal ultrasound.

B

Radionuclide bone scans may reveal delayed concentration of tracer in the kidney due to a generous collecting system or due to true obstruction. This finding should be confirmed by a functional study such as an contrast CT scan or nuclear renogram, which should help determine whether or not this represents a functionally significant obstruction. More invasive procedures such as cystoscopy and retrograde pyelogram, or an antegrade pyelogram are not indicated at this point. Serial creatinine measurements will help follow overall renal function but will not determine functional obstruction. Renal ultrasound is an anatomic study and may show hydronephrosis but will not determine if it is functional.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1210.

Questions::

A 68-year-old man undergoes a partial penectomy for a 4 cm squamous cell carcinoma with lymphovascular invasion and involvement of the subepithelial connective tissue. Physical exam reveals a 1.5 cm fixed, right inguinal mass. CT scans of the abdomen and pelvis are normal. His pathologic tumor stage (p) and clinical lymph node stage (c) are:

pTa cN1.

pT1a cN1.

pT1b cN2.

pT1b cN3.

pT2 cN3.

D

The 2010 AJCC staging for penile cancer made several significant changes. This patient has a pT1 tumor because of his subepithelial connective tissue involvement. Those patients with low grade tumors and without lymphovascular invasion are pT1a. This patient, however, has lymphovascular invasion and as a result is a pT1b. Patients with lymphovascular invasion are in fact at higher risk for metastatic disease. For the first time, nodal staging is divided into both clinical and pathologic staging schemes. With a palpable, fixed nodal mass, regardless of the size or unilateral/bilateral involvement, the clinical lymph node status is cN3.

Edge, SB, Byrd D, Compton C, Fritz A: AJCC Staging Manual, ed 7. New York, Springer-Verlag, 2010, chap 40, pp 449-450.

Questions::

A 70-year-old neurologically normal woman has random, large volume urinary incontinence. Medical history is significant for a hysterectomy 20 years ago. Urinalysis is normal and PVR is 40 ml. The urodynamic study shown does not reveal incontinence or definable abnormality. The most likely cause of her incontinence is:

overflow.

idiopathic detrusor overactivity.

detrusor overactivity with impaired contractility.

intrinsic sphincter deficiency.

vesicovaginal fistula.

B

This patient has urgency incontinence secondary to detrusor overactivity, as indicated by the random nature of the incontinence. Even though idiopathic detrusor overactivity implies the presence of involuntary bladder contractions in the absence of neurologic disease, a CMG will fail to demonstrate involuntary bladder contractions in approximately 50%25 of patients with clinical urge incontinence. Detrusor overactivity with impaired contractility and overflow incontinence is not the cause in this case since the PVR is low. The primary cause of the incontinence is not stress (increase in abdominal pressure) related, particularly not intrinsic sphincter deficiency, since urinary leakage did not occur during Valsalva maneuvers. The characteristics of the incontinence are not consistent with a vesicovaginal fistula since the

urinary leakage is not continuous.

Jackson S, Abrams P: The cystometrogram, in O'Donnell PD (ed): URINARY INCONTINENCE. St. Louis, Mosby-Year Book, 1997, chap 10, pp 69-76.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, pp 1992-1993.

Questions::

The factor that promotes stone formation during pregnancy is:

increased parathyroid hormone levels.

absorptive hypercalciuria.

placental suppression of 1,25-dihydroxycholecalciferol.

decreased urinary glycosaminoglycans.

decreased urinary citrate levels.

B

During normal pregnancy there is a physiological state of absorptive hypercalciuria. Placental production of 1,25-dihydroxycholecalciferol increases intestinal calcium absorption and secondarily suppresses parathyroid hormone. Urinary citrate and glycosaminoglycan excretion (inhibitors of stone formation) are increased. Therefore, overall stone rate during pregnancy is unchanged.

Biyani CS, Joyce A: Urolithiasis in pregnancy. BRI J UROL 2002;89:811-818.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1391

Questions::

A 75-year-old man underwent nephroureterectomy for pT3N0Mx ureteral cancer six weeks ago. He is now considered for adjuvant chemotherapy. He lives independently and maintains his own home; however, he cannot perform strenuous activity. He is out of bed most of the day. His ECOG (Eastern Cooperative Oncology Group) Performance Status is:

0.

1.

2.

3.

4.

B

The ECOG Performance Status, also called the WHO or Zubrod score runs from 0 to 5, with 0 denoting perfect health and 5 death.

0 - Fully active, without restriction.

1 - Completely ambulatory, but restricted in physically strenuous activity. Able to carry out work of a light or sedentary nature such as light housework or office work.

2 - Ambulatory and capable of all self care but unable to carry out any work activities. Out of bed > 50%25 of waking hours.

3 - Capable of only limited self-care and confined to a bed or chair > 50%25 of waking hours.

4 - Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair

5 - Death

Oken MM, Creech RH, Tormey DC, et al: Toxicity And Response Criteria Of The Eastern Cooperative Oncology Group. AM J CLIN ONCOL 1982;5:649-655.

Galsky MD, Hahn NM, Rosenberg J, et al: Treatment of patients with metastatic urothelial cancer "unfit" for Cisplatin-based chemotherapy. J CLIN ONCOL 2011;29:2432-2438.

Questions::

A 65-year-old man undergoes radical cystectomy and orthotopic neobladder urinary diversion for pT2b urothelial carcinoma of the bladder. A key maneuver for maintaining continence is:

maximizing the length of the neobladder.

minimizing the length of the urethra to prevent kinking.

placing an intraoperative urethral sling.

forming a funnel-shaped reservoir.

performing bilateral nerve-sparing surgery.

E

Factors that may increase leakage in patients with an orthotopic neobladder include: shortened functional urethral length, non-nerve sparing, decreased membranous urethral sensation, and increased time after diversion (as patients age.) Formulation of a funnel-shaped reservoir in fact increases kinking and increases the likelihood of failure of spontaneous voiding. Nerve-sparing may in fact aid in the functionality of the neobladder although exact mechanism is unknown. No

data exists for a placement of urethral sling being helpful in maintaining continence and may promote hypercontinence.

Thurairaja R, Burkhard FC, Studer UE: The orthotopic neobladder. BRI J UROL INT 2008;102:1307-1313.

Questions::

A 32-year-old man has recurrent calcium oxalate stone formation. Despite an oxalate restricted diet, his urinary oxalate is high. The next step is:

pyridoxine.

hydrochlorothiazide.

allopurinol.

alpha-mercaptoproprionyl glycine.

Vitamin B12.

A

Pyridoxine reduces oxalate production in up to 50%25 of patients with mild hyperoxaluria. Pyridoxine, a component of Vitamin B6, is a co-factor for alanine:glyoxylate aminotransferase (AGT), which converts glyoxylate to glycine. In doing so, less glyoxylate is available as a substrate for LDH which leads to a decrease in endogenous oxalate production. The other agents will have no impact on urinary oxalate.

Ortiz-Alvarado O, Miyaoka R, Kriedberg C, et al: Pyridoxine and dietary counseling for the management of idiopathic hyperoxaluria in stone-forming patients. UROL 2011;77:1054-1058.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, pp 1415-1427.

Questions::

A 68-year-old woman on recommended daily allowance (RDA) vitamins develops CIS of the bladder and is starting intravesical immunotherapy. In an effort to maximize tumor response rates and minimize side effects she should receive induction and subsequent maintenance therapy with BCG and:

discontinue vitamins.

continue RDA vitamins.

initiate mega dose vitamin supplements.

interferon, and RDA vitamins.

interferon, and mega dose vitamin supplements.

B

The use of both vitamin supplements and alpha interferon has become common in conjunction with BCG therapy. Recently a randomized prospective trial of 670 patients was completed to address these issues. BCG alone with RDA vitamins was associated with an equal disease free outcome when compared to combinations of interferon or mega dose vitamin supplements. Megadose vitamins showed no increased benefits when compared with RDA vitamins. All patients were treated with induction and maintenance BCG. Patients receiving interferon experienced greater side effects, particularly fever and constitutional symptoms. There is no compelling evidence to suggest that patient should discontinue RDA vitamins.

Nepple KG, Lightfoot AJ, Rosevear HM, et al: Bladder Cancer Genitourinary Oncology Study Group. Bacillus Calmette-Guerin with or without interferon alpha-2b and megadose versus recommended daily allowance vitamins during induction and maintenance intravesical treatment of nonmuscle invasive bladder cancer. J UROL 2010;184:1915-1919.

Questions::

A 55-year-old multiparous woman has urge incontinence. Urinalysis is normal and physical examination demonstrates a Grade 3 cystocele. Urodynamics reveal a PVR of 100 ml, detrusor overactivity resulting in incontinence, and a detrusor pressure at maximum flow (8 ml/sec) of 50 cm H2O. When the cystocele is reduced, no stress urinary incontinence can be elicited. The next step is:

antimuscarinic medication.

alpha-blocker therapy.

midurethral sling.

anterior colporrhaphy.

midurethral sling and anterior colporrhaphy.

D

This patient suffers from bladder outlet obstruction secondary to a large cystocele as indicated

by a high voiding pressure and low flow rate. The obstruction secondarily causes detrusor instability and subsequent urgency incontinence. Despite reducing the cystocele, no stress incontinence can be elicited indicating good support of the urethrovesical junction. The best treatment is to repair the cystocele with a technique such as anterior colporrhaphy. The absence of stress urinary incontinence precludes the need for a sling and if performed alone is likely to exacerbate the obstruction. Treatment with antimuscarinic medication in a patient with obstruction is likely to increase the PVR. Although alpha-blockers may be used off-label for primary bladder neck obstruction in women, the best treatment in this patient with a large cystocele is to correct the underlying abnormality.

Nitti VM: Bladder outlet obstruction in women, in Nitti VM (ed): PRACTICAL URODYNAMICS, Philadelphia, WB Saunders Co, 1998, chap 17, pp 197-210.

Herschorn S: Vaginal reconstructive surgery for sphincteric incontinence and prolapse, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 66, pp 2217-2230.

Questions::

A 72-year-old woman has had six symptomatic UTIs over the past year. These infections return shortly after antibiotic courses are concluded, and cultures have demonstrated significant colony counts of E. coli. Renal ultrasound is normal. The next step is:

ciprofloxacin prophylaxis.

nitrofurantoin prophylaxis.

oral low dose estrogen.

intravaginal estrogen.

lactobacillus.

D

The efficacy of estrogen for the prevention of UTI in post-menopausal women has been demonstrated in several studies. There appears to be a higher effectiveness rate in topically applied estrogen in the vagina with an improvement in lactobacillus concentrations, decreased vaginal pH and a decrease in UTI episodes from 5.9 to 0.5 episodes per year. Antimicrobial prophylaxis may be used at low dose if topical estrogen fails. Lactobacillus probiotics, while effective in an investigational setting, have not been subject to the scrutiny of controlled trials.

Stamm WE, Norrby SR: Urinary tract infection disease panorama and challenge. J INF DIS 2001;103:1-4.

Questions::

A 69-year-old man with metastatic castrate resistant prostate cancer experiences symptomatic clinical progression following I.V. docetaxel and oral prednisone given every three weeks. In order to improve survival, the most appropriate next step is:

mitoxantrone.

sipuleucel-T.

docetaxel weekly.

cabazitaxel.

ketoconazole.

D

A chemotherapeutic intervention proven to prolong survival in the setting of metastatic castrate resistant prostate cancer resistant to docetaxel is cabazitaxel. This regimen was FDA approved for this indication in 2010 and demonstrated a 30%25 reduction in the chance of dying of prostate cancer in a prospective phase III randomized trial. Mitoxantrone served as the control arm of the trial and has not been associated with a survival advantage in prostate cancer. Sipuleucel-T has been proven to extend survival in asymptomatic metastatic castrate resistant patients. Ketoconazole has not been proven to demonstrate a survival advantage in this setting and switching to weekly docetaxel has also not been associated with a survival advantage. Abiraterone, an androgen biosynthesis inhibitor has reported a survival difference as well in a phase III trial compared against placebo.

de Bono JS, Oudard S, Ozguroglu M, et al; TROPIC Investigators: Prednisone plus cabazitaxel or mitoxantrone for metastatic castration-resistant prostate cancer progressing after docetaxel treatment: A randomized open-label trial. LANCET 2010;376:1147-1154.

Questions::

A 60-year-old man has renal insufficiency due to atherosclerotic renal artery disease. The most important prognostic factor for successful renal revascularization to preserve renal function is:

duration of hypertension.

proportion of sclerotic glomeruli on renal biopsy.

serum creatinine.

presence of collateral blood supply on angiography.

presence of renal artery occlusion.

C

Revascularization to preserve renal function in patients with atherosclerotic renal artery stenosis will most likely benefit those who have not yet sustained permanent global impairment of renal function. Complete occlusion of the renal artery does not necessarily preclude intervention, since renal viability may be maintained through the presence of collateral arterial supply. The Cleveland Clinic group has found that 89%25 of such patients with initial serum creatinine < 3.0 mg/dl could be expected to have stable or improved renal function after revascularization. However, renal biopsy to evaluate the severity of renal parenchymal involvement as a guide to revascularization was found to be helpful only if the initial serum creatinine exceeded 4.0 mg/dl. In addition to the absolute level of renal function, the rate of decline of renal function is an important determinant of outcome after intervention. Duration of hypertension does not predict recoverability in this setting.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1175.

Questions::

The most accurate method to determine the length of a graft needed for repair of an anterior urethral stricture is:

urethroscopy.

ultrasound.

VCUG.

retrograde urethrogram.

CT imaging.

B

Prior to harvesting a Buccal graft or other graft for repair of an anterior urethral stricture, ultrasound can easily identify the area of stricture as well as the area of scarred urethra which must be resected to adequately restore urethral continuity using an onlay graft. Sonourethrography has been shown to be a useful adjunct to standard radiographic imaging of bulbar urethral strictures. Although it can aid in the visualization of the corpus spongiosum including vascular structures, calcifications, and periurethral fibrosis, incorporation of this

information into surgical decision making algorithms has not followed. The primary benefit of ultrasound imaging is the lack of distortion created by the oblique position during retrograde urethrogram (RUG). Thus the sonogram will more accurately measure the length of the stricture. In bulbar urethral strictures of intermediate length, RUG will underestimate the true length of the stricture by up to 13 mm. VCUG can delineate the urethra proximal to the stricture unless the patient is unable to void, in which case sonography may allow visualization of the posterior urethra by vigorous suprapubic pressure under anesthesia. Urethroscopy will not demonstrate underlying spongiofibrosis, while VCUG and retrograde urethrography are subject to distortion and measurement error. CT urethrograms have only been used to identify acute injuries of the urethra.

Choudhary S, Singh P, Sundar E, et al: A comparison of sonourethrography and retrograde urethrography in evaluation of anterior urethral strictures. CLIN RAD 2004;59:736-742.

Gallentine ML, Morey AF: Imaging of the male urethra for stricture disease. UROL CLIN N AM 2002;29:361-372.

Questions::

A 21-year-old woman develops hematuria and a mass in the allograft 18 months after renal transplant. Needle biopsy of the mass reveals an Epstein-Barr virus positive lymphoproliferative tumor. MRI scan is shown. The next step is:

reduce immunosuppression.

ganciclovir.

rituximab.

chemotherapy.

allograft nephrectomy.

A

Post-transplant lymphoproliferative disorders are most commonly non-Hodgkin lymphomas and are often associated with Epstein-Barr virus infection. The reported incidence ranges from 0.8%25 to 15%25, and varies with the type of immunosuppression utilized. These tumors may respond to drastic reduction or withdrawal of immunosuppression. Irradiation is not generally effective and may exaggerate the degree of immune compromise. Treatment with anti-viral medications such as ganciclovir may be beneficial following reduction in immunosuppression. Rituximab (anti CD-20) and chemotherapy are second line therapies for this type of tumor. Nephrectomy may be necessary, but is not the initial treatment.

Sahadevan M, Kasiske BL: Long-term management and complications, in Danovitch GM (ed): HANDBOOK OF KIDNEY TRANSPLANTATION, ed 4. Philadelphia, Lippincott Williams %26 Wilkins, 2004, chap 9, pp 268-270.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation, in Wein AJ,

Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1295.

Questions::

A 35-year-old man with C5 quadriplegia has urinary incontinence managed by condom catheter drainage. Urodynamics reveal a detrusor LPP of 60 cm H2O at 150 ml. The next step is:

observation.

CIC.

antimuscarinic medication.

external sphincterotomy.

male sling.

D

This patient has a high detrusor LPP that puts his upper urinary tract at risk. Since he is a quadriplegic and is managed with a condom catheter, the next best step is an external sphincterotomy that can be done surgically or pharmacologically with injection of botulinum. Observation and a male sling do nothing to reduce the effects of his bladder on the upper urinary tract. CIC is usually not feasible for quadriplegics and would not be helpful in this situation since the functional bladder capacity is only 150 ml. Antimuscarinic medication alone would also not be helpful since it would not decrease the detrusor leak point pressure.

Moy ML, Wein AJ: Additional therapies for storage and emptying failure, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 70, p 2032.

Rudy DC: Spinal cord injuries, in O'Donnell PD (ed): URINARY INCONTINENCE, St. Louis, Mosby, 1997, chap 46, pp 331-338.

Questions::

A 52-year-old woman has acute onset of right flank pain. She has a long-standing history of diarrhea secondary to laxative abuse. Urinalysis shows numerous RBCs and a pH 6.5. While in the emergency room she passes a small stone. The most likely stone composition is:

xanthine.

uric acid.

struvite.

ammonium acid urate.

calcium phosphate.

D

Ammonium acid urate stones are rare. They are found in patients with chronic diarrhea and a history of laxative abuse. These patients have low urinary sodium excretion. Their urinary citrate levels are usually low secondary to bicarbonate loss from the gastrointestinal tract. Urine pH is usually above 6.3; when urine pH is below 5.5 uric acid will likely precipitate. Ammonium acid urate stones are also found in patients with ileal resection or with large portions of their colon removed. Chronic diarrhea and UTIs are additional risk factors. Ammonium acid urate stones are relatively radiolucent and may be mistaken for uric acid stones. Ammonium acid urate stones do not dissolve with alkalinization. Calcium phosphate stones typically form in the setting of hypercalciuria and/or hypocitraturia and are not associated with laxative abuse.

Matlaga BR, Shah OD, Assimos DG. Drug-induced urinary calculi. REV UROL 2003;5:2272-2231.

Soble JJ, Hamilton BD, Streem SB: Ammonium acid urate calculi: A reevaluation of risk factors. J UROL 1999;161:869-873.

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, pp 1387-1389.

Questions::

A 12-year-old boy undergoes a dismembered pyeloplasty with nephrostomy drainage for symptomatic UPJ obstruction. A nephrostogram performed two weeks later shows no drainage across the UPJ. The next step is:

repeat nephrostogram in two weeks.

MR urography.

antegrade renal perfusion study (Whitaker test).

convert the nephrostomy to a nephroureteral stent.

retrograde pyelography and ureteral stent placement.

A

After a successful dismembered pyeloplasty, it is not uncommon for a delayed opening of the anastomosis when using nephrostomy drainage. As long as the patient is doing well clinically, the best management during the early post-operative period is patience and repeat assessment to allow the anastomotic edema to subside further. Repeat nephrostogram in two weeks is the appropriate next step. Some have advocated a simple clamping trial of the nephrostomy tube and check the residual amount afterward. MR urography and a Whitaker study are unwarranted during the early post-operative period, as are the retrograde pyelography/stent placement and conversion of the nephrostomy tube to a nephroureteral stent. Stent placement could also damage the anastomosis.

Carr MC, El-Ghoneimi A: Anomalies and surgery of the ureteropelvic junction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 115, p 3380.

Questions::

A 62-year-old man with a serum creatinine of 4.7 mg/dl has persistent bleeding after TURP. The bleeding time is prolonged, but the PT, PTT, fibrinogen and platelet count are normal. The best treatment is:

aminocaproic acid.

Vitamin K.

fresh frozen plasma.

desmopressin.

platelet transfusion.

D

Abnormal bleeding times in patients with renal failure are due to poor platelet aggregation. The coagulopathy may be reversed transiently by desmopressin, cryoprecipitate, conjugated estrogens, blood transfusions, erythropoietin, or dialysis. However, Vitamin K has no activity in the setting of reversing platelet dysfunction in ESRD. Similarly, fresh frozen plasma will affect the coagulation cascade but that shouldn't be abnormal in ESRD patients. Platelet transfusion is not helpful in the setting of normal platelet count as aggregation is not improved with more platelets.

Skorecki K, Green J, Brenner BM: Chronic renal failure, in Kasper DL, Braunwald E, Fauci AS, Hauser SL, Longo DL, Jameson JL (eds): HARRISON'S PRINCIPLES OF INTERNAL MEDICINE, ed 16. New York, McGraw-Hill, 2005, chap 261, p 1734.

Questions::

The most common cause of catheter-associated UTI is:

improper catheterization technique.

urethral meatal bacteria.

break in the drainage system.

urinary drainage bag bacteria.

bacterial antimicrobial resistance.

B

Urethral meatal bacteria are the most frequent source of catheter-associated urinary tract infection. Unfortunately, topical urethral meatal antimicrobial agents do not prevent urinary tract infections and frequently cause overgrowth of resistant bacteria. Improper catheterization techniques, breaks in the system, and contamination of the drainage bag are less frequent but preventable causes of catheter-associated infection. Antimicrobials allow growth of resistant bacteria that are more difficult to treat but not more likely to cause infection.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, pp 296-297.

Questions::

A one-year-old hypertensive boy has a large, fixed abdominal mass. The most likely diagnosis is:

congenital mesoblastic nephroma.

Wilms' tumor.

neuroblastoma.

pheochromocytoma.

autosomal recessive polycystic kidney disease.

C

This boy likely has a neuroblastoma. 50%25 of these tumors present in children under the age of two. These tumors are usually large, hard, and fixed. Children will often have numerous other

paraneoplastic syndromes. Catecholamine release from the neuroblastoma can result in symptoms that can mimic pheochromocytoma including paroxysmal hypertension, palpitations, sweating, and headaches. However, pheochromocytomas tend not to be large masses like this and present in older children. Wilms' tumor usually presents in children a few years older and the masses are more likely to be smooth and less fixed. Hypertension can also be seen but is less common. Congenital mesoblastic nephroma is possible but is usually seen in infants a few months of age and is the most common renal tumor in children less than six months of age. Autosomal recessive polycystic kidney disease can present at any age with a wide spectrum of symptoms. It involves both kidneys and you should be able to palpate bilateral masses. When it presents early in life, it is usually severe and associated with significant renal insufficiency.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3871.

Questions::

A 25-year-old woman has headaches and shortness of breath. Her blood pressure is 160/110 mmHg and serum creatinine is 1.0 mg/dl. She has an abdominal bruit and microscopic hematuria. Renal angiography demonstrates a 6 cm cirsoid arteriovenous fistula and a normal contralateral kidney. The best management is:

angiotensin converting enzyme inhibitor.

beta-blocker.

fistula ligation.

angio-embolization.

nephrectomy.

E

Cirsoid arteriovenous fistulae are generally congenital in nature. This must not be confused with the much more common arteriovenous fistulae that results from iatrogenic kidney needle biopsies. Treatment for the congenital cirsoid lesion is indicated in patients with hypertension, cardiomegaly, heart failure, severe hematuria, or angiographic evidence of expansion of the lesion. ACE inhibitors and beta-blockers are not effective in the treatment of this anatomical defect. Cirsoid fistulas are not like a simple arteriovenous connection where one can just ligate a vessel and the lesion is resolved. Due to the complexity of the lesion, angio-embolization is generally considered difficult if not impossible and the patient is at risk for complications, particularly coil migration. Nephrectomy is the treatment of choice. The importance of this concept is to recognize that cirsoid arteriovenous fistula is a different entity than an iatrogenic

arteriovenous fistula from biopsies and thus, the treatment is different.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, p 1189.

Questions::

A 75-year-old man with a history of peptic ulcer disease and gout has a newly-formed 2 cm radiopaque renal calculus, hypercalcemia, and an E. coli UTI. Chest x-ray reveals a 3 cm primary lung tumor. The most likely cause of his urolithiasis is:

absorptive hypercalciuria.

primary hyperparathyroidism.

ectopic hyperparathyroidism.

secondary hyperparathyroidism.

E. coli UTI.

C

Among the conditions this man has, only the ectopic production of parathyroid hormone related peptide would explain his stone formation. E. coli is not a urease producing organism and thus should not cause a stone. Given a history of peptic ulcer disease, a stone can form due to the development of milk-alkali syndrome, however, this is not one of the listed choices. The presence of hypercalcemia rules out secondary hyperparathyroidism. While absorptive hypercalciuria likely is playing a role in this patient, it is more likely due to the effect of ectopic production of parathyroid hormone related peptide due to the hypercalcemia present (homology to PTH in the first 13 amino acids). This ectopic production is most commonly seen with squamous cell carcinoma of the head, neck or lung (as in this case).

Pearle MS, Lotan Y: Urinary lithiasis: Etiology, epidemiology, and pathogenesis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 42, p 1363.

Uchimura K, Mokuno T, Nagasaka A, et al: Lung cancer associated with hypercalcemia induced by concurrently elevated parathyroid hormone and parathyroid hormone-related protein levels. METAB 2002;51:871-875.

Questions::

Recurrent UTIs in school-age girls is most often influenced by:

race.

constipation.

nocturnal enuresis.

fever with initial infection.

VUR.

B

Recurrent UTI in school age girls are significantly related to the following factors; a family history of recurrent UTI, a history of infrequent voiding, diurnal incontinence, poor fluid intake, and constipation. Recurrent UTI rates have not been found to be significantly associated with isolated nocturnal enuresis, race, the presence of VUR, or whether or not the initial infection was febrile in nature.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, pp 3261-3263.

Questions::

A 58-year-old man has incontinence and prolonged urination six months following radical retropubic prostatectomy. Urodynamic evaluation with a 10 Fr catheter demonstrates normal bladder capacity and no detrusor overactivity. At 250 ml, Valsalva maneuver increases bladder pressure to 150 cm H2O without evidence of urinary leakage. The etiology of the incontinence is best determined by:

remove catheter and repeat Valsalva maneuver.

repeat urodynamic study with suprapubic catheter.

uroflowmetry.

retrograde urethrogram.

cystoscopy.

A

The patient most likely has an anastomotic stricture and stress incontinence. The 10 Fr catheter is occluding the bladder neck, preventing demonstration of stress incontinence. A repeat urodynamic study with a suprapubic catheter is not necessary since the bladder capacity is

known to be normal and there is no evidence of overactivity, and may be overly aggressive. Cystoscopy and retrograde urethrogram would demonstrate the stricture, however these studies would not demonstrate stress incontinence. The simplest study to determine the etiology of the incontinence is removing the urodynamic catheter with the bladder full and asking the patient to Valsalva in order to evaluate sphincteric function.

Chancellor MB: Post prostatectomy incontinence, in Blaivas JG, Chancellor, MB (eds): ATLAS OF URODYNAMICS. Philadelphia, Williams %26 Wilkens, 1996, pp 240-250.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, p 1986.

Questions::

A seven-year-old boy has had multiple repairs for penoscrotal hypospadias. He has recurrent lower UTIs and postvoid dribbling. Renal ultrasound is normal and a pelvic ultrasound is shown. The most likely diagnosis is:

mesonephric duct cyst.

ectopic ureter.

Cowper's duct cyst.

prostatic utricle.

bladder diverticulum.

D

In boys with proximal hypospadias, the prostatic utricle is often enlarged due to a lack of androgen action. In the female, this would represent the distal 1/3 of the vagina. The ultrasound demonstrates a midline cystic structure behind the bladder which is consistent with a prostatic utricle. While an ectopic ureter, bladder diverticulum, or mesonephric duct cyst could have a similar appearance, they are usually lateral in location. In addition, the history of proximal hypospadias would make a utricle most likely. A Cowper's duct cyst should be confined to the bulbous and prostatic urethra.

Borer JG, Retik AB: Hypospadias, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 125, p 3711.

Questions::

The blood supply to the left adrenal gland is derived from branches from the following arteries:

aorta and renal.

renal and splenic.

renal, splenic, and inferior phrenic.

aorta, renal, and inferior phrenic.

aorta, renal, and splenic.

D

The blood supply for both the right and left adrenal glands is the same. The three sources for each adrenal gland are derived superiorly from branches of the inferior phrenic artery, in the middle directly from the aorta, and inferiorly from the ipsilateral renal artery.

Anderson JK, Kabalin JN, Cadeddu JA: Surgical anatomy of the retroperitoneum, adrenals, kidneys, and ureters, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 1, pp 20-24.

Questions::

A 72-year-old man develops dyspnea and hypertension following nephrectomy for RCC with adrenal sparing. The preoperative CT scan shows aortic calcification and a ventilation perfusion scan shows a low probability of pulmonary emboli. The best agent to treat the hypertension is a:

diuretic.

calcium channel blocker.

alpha-blocker.

ACE inhibitor.

angiotensin receptor blocker.

A

This patient has a high probability of having renal artery stenosis. By removing one kidney the situation becomes analogous to the one-kidney, one clip model. In this situation, hypertension is largely maintained by volume and sodium excess. In the face of normal circulating angiotensin II (AII) levels, ACE inhibitors or AII antagonists do not result in marked decrease of blood pressure. Calcium channel and alpha-blockers also are not very effective until the volume overload has

been treated. Since the etiology of hypertension is intravascular volume expansion, the best choice is a diuretic.

Novick AC, Fergany A: Renovascular hypertension and ischemic nephropathy, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 36, pp 1161-1167.

Questions::

A 45-year-old man has left flank pain four hours after a MVC. Physical examination is normal. His blood pressure is 110/60 mmHg, pulse is 80 bpm, and urinalysis demonstrates 5 RBC/hpf. The next step is:

cystogram.

CT scan.

renal ultrasound.

isotope renography.

observation.

E

Most patients with blunt trauma and microscopic hematuria do not need imaging. The SIU Consensus Statement on Renal Injuries recommends imaging to detect blunt trauma only in selected patients. Adults with gross hematuria or microhematuria and hypotension have a major (e.g. Grades 3,4,5) injury rate of approximately 12.5%25 and thus warrant further imaging. These recommendations were derived from a number of studies including the seminal article by McAninch and associates in 1989. A review of 2,254 patients with suspected renal trauma seen from 1977 to 1992 was performed by McAninch and colleagues. Of the 1,588 blunt trauma patients with microscopic hematuria and no shock, three had significant injury but these cases were discovered during imaging or exploratory laparotomy for associated injury. Follow-up of 515 of 1,004 patients (51%25) who did not undergo initial imaging revealed no significant complications. Adults with blunt renal trauma, microscopic hematuria and no shock (systolic pressure < 90 mm/Hg) or major associated intra-abdominal injuries can safely be spared radiographic imaging.

Miller KS, McAninch JW: Radiographic assessment of renal trauma: Our 15 year experience. J UROL 1995;154:352-355.

Santucci RA, Wessells H, Bartsch G, et al: Evaluation and management of renal injuries: Consensus statement of the renal trauma subcommittee. BJU INT 2004;93:937-954.

Questions::

Using a monopolar loop, two > 3 cm bladder tumors are endoscopically resected from the bladder dome and left trigone. At the end of the procedure, suprapubic distension is noted. Blood drawn at this point is most likely to reveal:

anemia.

high glycine level.

hyperammonemia.

hyponatremia.

elevated BUN.

D

This patient most likely has bladder perforation related to resection at the base of one of these superficial tumors. The bladder dome is often quite thin and is at high risk for perforation during resection. Also, obturator nerve stimulation can cause muscular spasm during resection of a laterally located tumor and this sudden motion may lead to perforation with the resecting loop. The monopolar current requires glycine or another non-electrolyte containing solution to be used in order to avoid dispersion of the current. Extravasation of the irrigation solution is the likely cause of the suprapubic distension. Glycine is quickly metabolized in the liver after absorption and is unlikely to be detected in the serum. However, the remaining extravesical fluid is free water and will cause acute dilutional hyponatremia as it is absorbed. Ammonia should not be elevated in this circumstance and serum BUN only goes up over a longer period of time if there is extravasation of urine with secondary resorption from exposed tissues. It is unlikely that there has been vessel injury from these superficial resections that is severe enough to cause anemia and suprapubic distension acutely.

Nieh PT, Marshall FF: Surgery of bladder cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 78, pp 2479-2483.

Questions::

A 62-year-old man has a right adrenalectomy for an 8 cm pheochromocytoma and 1 of 4 paracaval lymph nodes reveals involvement with tumor. Serum metanephrines, MIBG scan, and blood pressure are normal postoperatively. The next step is:

observation.

somatostatin.

mitotane.

metyrapone.

aminoglutethimide.

A

Approximately 10%25 to 20%25 of pheochromocytomas are malignant and malignancy is more common in tumors larger than 5 cm and in extra-adrenal tumors. Observation is the most appropriate therapy in a fully resected asymptomatic patient. Mitotane has proven palliative benefit in cases of metastatic adrenal cortical carcinoma. Metyrapone and aminogluthamide can be use to ameliorate hormonal production in metastatic adrenal cortical carcinoma. Somatostatin or octreotide has limited use in the palliative treatment of secreting metastatic pheomochromocytoma causing hypertension. Radiolabeled MIBG therapy can be useful in symptomatic patients with a positive MIBG scan for metastases. Combination chemotherapy has been used in the treatment of metastatic pheochromocytoma with some limited success. The most commonly used regimen is cyclophosphamide, vincristine, and dacarbazine.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1862.

Adjall|eacute| R, Plouin PF, Pacak K, Lehnert H: Treatment of malignant pheochromocytoma. HORM METAB RES 2009;41:687-696.

Scholz T, Eisenhofer G, Pacak K, et al: Clinical review: Current treatment of malignant pheochromocytoma. J CLIN ENDOCRIN METAB 2007;92:1217-1225.

Questions::

An 82-year-old woman has asymptomatic E. coli bacteriuria. The next step is:

ciprofloxacin.

trimethoprim-sulfamethoxazole.

nitrofurantoin.

re-culture urine.

observation.

E

Asymptomatic bacteriuria is particularly common in elderly women. There is evidence in adults

that while 80%25 of patients with asymptomatic bacteriuria can be cured with a seven day course of oral antimicrobial therapy, long term cure rates are no better than placebo therapy because of reinfections in treated patients and spontaneous cures in untreated subjects. Moreover, treatment of asymptomatic infections, which are often associated with self agglutinating E. coli that have lost their O polysaccharide surface antigens, is frequently followed by a new E. coli infection with intact O surface antigens that are apparently responsible for acute symptoms. For this reason a sound argument can be made against treating an asymptomatic infection just to achieve low growth in the urine for a short period of time.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, p 223.

Questions::

A 12-year-old girl with spina bifida and sigmoid cystoplasty has had multiple recurrent bladder stones. To reduce the risk of further bladder stones, the next step is:

potassium citrate.

antibiotic prophylaxis.

increase CIC frequency.

irrigate bladder daily.

conversion to a ileocystoplasty.

D

Bladder stone formation is a frequently encountered complication after enterocystoplasty. The most effective preventive measure appears to be regular bladder irrigation. There is no definitive data to support other measures such as frequent CIC, potassium citrate, or antibiotic suppression to decrease the incidence of bladder calculi. Conversion to ileocystoplasty will not significantly reduce the risk of bladder calculi.

Adams MC, Joseph DB: Urinary tract reconstruction in children, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 124, p 3684.

Questions::

A 22-year-old man sustains a complete T8 spinal cord injury. Four weeks after the injury, the urodynamic profile is best characterized by:

detrusor overactivity, functional smooth sphincter, guarding reflex present.

detrusor overactivity, functional smooth sphincter, guarding reflex absent.

detrusor areflexia, functional smooth sphincter, guarding reflex absent.

detrusor areflexia, smooth sphincter dyssynergy, guarding reflex absent.

detrusor areflexia, functional smooth sphincter, guarding reflex present.

C

Spinal shock after spinal cord injury is the result of absent somatic reflex activity and suppression of somatic and autonomic activity below the level of the injury. It typically lasts six to twelve weeks but can last up to two years. At four weeks after injury, spinal shock continues and is manifested by bladder areflexia, a functional smooth sphincter and an absent guarding reflex (the ability of the striated sphincter to contract during bladder filling). After spinal shock, a T8 SCI patient is likely to have detrusor overactivity, smooth sphincter synergia (because T8 is below sympathetic outflow) and absent guarding reflex.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2021-2022.

Questions::

A 20-year-old man with cystinuria has recurrent calculi despite dietary therapy and hydration. The next step is:

acetohydroxamic acid.

Tham-E.

N-acetylcysteine.

D-penicillamine.

alpha-mercaptopropionylglycine.

E

Cystinuria should be managed initially with hydration and, perhaps, alkali therapy. The solubility of cystine does not significantly increase until the urinary pH reaches 7.5. At this pH, calcium phosphate precipitation may occur. Specific therapy would include use of either D-penicillamine

or alpha-mercaptopropionylglycine (Thiola). D-penicillamine is less well-tolerated and approximately 50%25 of patients stop this therapy due to side effects. Tham-E is an alkalinizing agent used for irrigation. Acetohydroxamic acid is a urease inhibitor used for the management of infection stones. Captopril may be effective in reducing urinary cystine excretion in patients who have not responded to therapy with alpha-mercaptopropionylglycine and D-penicillamine or who are intolerant of these agents.

Rogers A, Kalakish S, Desai RA, Assimos DG: Management of cystinuria. UROL CLIN N AM 2007;34:347-362.

Moe OW, Pearle MS, Sakhaee K: Pharmacotherapy of urolithiasis: Evidence from clinical trials. KID INT 2011;79:385-392.

Questions::

A ten-year-old boy has a three-day history of painless, gross hematuria with a tea color appearance. He was diagnosed with streptococcal pharyngitis two weeks ago. Urinalysis shows > 100 RBC/hpf and trace proteinuria. The next step is:

repeat urinalysis in two weeks.

VCUG.

non-contrast CT scan.

cystoscopy.

renal biopsy.

A

This is a typical scenario of a pediatric postinfectious glomerulonephritis. It is often preceded by either pharyngeal or skin streptococcal infection between 7 to 21 days. The most common presentation is painless gross hematuria, with accompanying mild proteinuria, edema and hypertension. The C3 is low in 85-95%25, and the streptozyme test is positive when preceding infection was a streptococcal infection. The prognosis is excellent, and the treatment is supportive. Gross hematuria resolves in several days, and proteinuria decreases during the first several weeks. In this clinical scenario where the etiology of the gross hematuria is evident, further diagnostic tests are not indicated. Renal biopsy should be considered in the presence of persistent hematuria and proteinuria.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3226.

Questions::

A 32-year-old man has left flank pain. Scout film and retrograde pyelogram are shown. The next step is:

CT scan without contrast.

CT scan with I.V. contrast.

SWL.

PCNL.

laparoscopic calyceal diverticulectomy.

A

The image demonstrates an upper calyceal diverticulum. SWL is not recommended for the management of calyceal diverticulum with a narrow diverticular neck, as shown here, as fragments are unlikely to clear. PCNL and laparoscopy are appropriate alternatives for management of a calyceal diverticulum. However, before the choice of procedure can be made, it is important to determine whether the diverticulum is in an anterior vs. posterior location, as well as the relationship of the pleura and adjacent organs. PCNL would be utilized for a posterior diverticulum, while laparoscopy would be utilized for an anterior diverticulum. A CT scan without contrast will provide information for each of these variables. The CT scan will also determine the amount of parenchyma overlying the diverticulum. I.V. contrast would not be necessary as the retrograde pyelogram delineates the calculi within the diverticulum.

Canales B, Monga M: Surgical management of the calyceal diverticulum. CURR OPIN UROL 2003;13:255-260.

Questions::

Homologous natural cycle artificial insemination for couples with male factor infertility due to oligoasthenospermia is:

only effective if placed intracervically.

only effective if placed intrauterine.

no more effective than timed vaginal intercourse.

most effective in women with tubal disorders.

most useful with counts of < 10 million per ejaculate.

C

Natural cycle refers to allowing the woman to ovulate on her own without pharmaceutical induced stimulation of the development of multiple follicles through ovulation induction. In men with male factor infertility due to abnormal semen parameters, natural cycle intracervical or intrauterine insemination (IUI) is no better than timed vaginal intercourse. Those techniques are only useful in infertility caused by mechanical problems such as hypospadias, retrograde ejaculation, or impotence. Natural cycle IUI is useful in pure cervical factor infertility. Pregnancy rates with IUI are increased in couples with abnormal semen parameters if the woman undergoes ovulation induction. Clomiphene citrate and gonadotropins are commonly used medications for ovulation induction. Women with tubal abnormalities are best treated with in vitro fertilization since inseminated sperm still need to ascend through the fallopian tubes. The higher the total motile sperm count the better the pregnancy rate, therefore those with a sperm count > 10 million will fare better than those with < 10 million.

Sigman M, Jarow JP: Male infertility, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 19, p 651.

Questions::

A five-year-old boy with a history of PUV ablation is incontinent day and night. Renal ultrasound shows normal kidneys bilaterally. VCUG shows a mildly trabeculated bladder without VUR and a patent urethra. PVR is 10 ml. He has normal daily bowel movements. The urinalysis is normal, and he has not had any UTIs. The next step is:

timed voiding.

nocturnal bladder drainage.

urodynamic study.

oxybutynin.

desmopressin.

A

Voiding dysfunction and incontinence are common in boys with history of PUV. Over 80%25 will struggle with incontinence at age five. Nocturnal bladder drainage is usually indicated in the presence of high urinary output which can occur in boys with a history of PUV secondary to a concentrating defect. In such patients, significant hydroureteronephrosis is expected, which this patient does not have. Since he is not retaining urine after voiding, urodynamic test will likely demonstrate a pattern of bladder overactivity. However, it is appropriate to try conservative

measures such as timed voiding prior to proceeding with more invasive testing such as urodynamics. Oxybutynin must be used with caution since a possible underlying myogenic dysfunction could lead to outright urinary retention. Desmopressin will not affect bladder dysfunction, which is the primary etiology of incontinence in boys with PUV.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3597.

Questions::

An 85-year-old woman in an assisted living facility with a history of asymptomatic bacteriuria has two days of urinary frequency, urgency, and incontinence. A urine culture reveals 10⁵ CFU/ml pan sensitive E. coli. The next step is:

observation.

PVR, cystoscopy, and upper tract imaging.

single dose antibiotic therapy.

antibiotic therapy for seven days.

topical vaginal estrogen.

D

New onset symptoms in a geriatric patient with previously diagnosed asymptomatic bacteruria warrant therapy. Generally, seven days of therapy is suggested. Single dose therapy is inadequate in this setting. There is no indication for catheterization as the patient is symptomatic and has a positive urine culture. Although this patient may need an evaluation for recurrent UTI's at some point, this evaluation can be delayed until she is adequately treated for her current symptomatic infection. Treating with estrogen alone in a settting of a symptomatic infection is insufficient. Initiating estrogen therapy in patients with recurrent symptomatic UTIs and atrophic vaginitis would be appropriate.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, p 295.

Questions::

A 35-year-old man with a history of left renal colic has a 5 mm calculus in the left renal pelvis. Two months later, he complains of a burning sensation in the distal urethra. He has a normal urinary stream, and there are no associated bladder symptoms. Based upon this clinical history,

the calculus is most likely located in the:

upper ureter.

mid-ureter.

intramural ureter.

bladder.

urethra.

C

The location and nature of pain and/or colic can often times determine the location of ureteral calculi. Classically, patients who report flank discomfort with radiation anteriorly most often have stones located in the proximal or mid-ureter. More commonly, patients with stones in the distal ureter will report irritative voiding symptoms or pain radiating to the penis, scrotum, or labia. With a normal urinary stream and no associated bladder symptoms, it is unlikely that this patient has a stone either in the urethra or bladder, respectively.

Dooley JA, Choi MJ: Acute renal colic, in Piccini %26 Nilsson: THE OSLER MEDICAL HANDBOOK, ed 2. Baltimore, Johns Hopkins Press, 2006, p 764.

Gupta M, Stoller ML: Acute and chronic renal pain, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott, Raven Publishers, 1996, pp 463-500.

Questions::

A five-year-old girl is evaluated for a febrile UTI. She has daytime urgency and rare wetting. She is dry at night. Physical examination is normal. A renal US is normal and a VCUG shows bilateral grade 2 VUR. Spina bifida occulta at L5 is noted on the scout film. The next steps are prophylactic antibiotics and:

spinal MRI scan.

urodynamics.

timed voiding.

oxybutynin.

endoscopic correction of reflux.

C

Spina bifida occulta is often identified on spine films. In a child with a normal physical examination the chance of a spinal cord abnormality is very small. These children should be treated the same as other children with urgency and daytime wetting. The initial management is timed voiding and maintenance of a voiding diary. Since it is very likely that this VUR will resolve with behavioral modification surgical management including endoscopic treatment is not indicated. Urodynamics would be reserved for those children that are refractory to medical management. MRI scan of the spine is not indicated.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, p 3604.

Questions::

A 48-year-old man has an AUA Symptom Score of 26 and a bother score of 4, recurrent UTIs, and significant bladder outlet obstruction documented on urodynamics. He wants to maintain fertility. He has failed medical therapy. The next step is:

CIC.

unilateral TUIP.

bilateral TUIP.

laser vaporization of the prostate.

TURP.

B

A frequent complication of bladder outlet surgery for the treatment of obstruction is retrograde ejaculation. While this can be overcome with bladder harvested sperm most men who desire to maintain their fertility want normal antegrade ejaculation. The incidence of retrograde ejaculation is very high after TURP (up to 95%25). TUIP has a much lower incidence of retrograde ejaculation (0%25 to 37%25) and in many series is as effective as TURP. With a unilateral incision the incidence of retrograde ejaculation is less than 5%25, and with two incisions, it is 15%25. Laser vaporization has an associated risk of retrograde ejaculation that may be as high as TURP. While CIC would likely preserve antegrade ejaculation it is less desirable in a healthy young man.

Fitzpatrick JM: Minimally invasive and endoscopic management of benign prostatic hyperplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 88, pp 2841-2842.

Questions::

The principal source of operator radiation exposure during endourologic procedures is:

the primary radiation beam.

radiation leakage from the x-ray tube.

radiation scatter from the patient.

radiation scatter from endoscopic instruments.

radiation scatter from the operating room walls and floor.

C

Scattering of the primary beam from the patient is the primary source of radiation exposure to the operator during endourologic procedures. For this reason, maximizing the distance between the operator and the patient during fluoroscopy is a very effective method of reducing exposure. This explains why the fluoroscopy source is best placed under the patient to minimize radiation scatter to the operator.

Hellawell GO, Mutch SJ, Thevendran G, et al: Radiation exposure and the urologist: What are the risks? J UROL 2005;174:948-952.

Preminger GM, Fulgham PF, Curry T: Fluoroscopic safety for the urologist. AUA UPDATE SERIES 1986, vol 5, lesson 29, pp 1-7.

Questions::

The therapy with the highest success and lowest relapse rate for uncomplicated primary nocturnal enuresis is:

behavioral modification.

oxybutynin.

imipramine.

DDAVP.

nocturnal enuretic alarm.

E

To date, the etiology of primary nocturnal enuresis is poorly understood. Research has shown that many children will have a reduced functional bladder capacity and an element of overactive bladder contractions while sleeping. Most children will also have an element of elevated arousal threshold while sleeping. Many single and combination treatment modalities have been used including the urinary alarm, anticholinergics, DDAVP, and imipramine. However, the modality that has the highest success and the lowest relapse rate is the nocturnal enuretic alarm. The correct use of the alarm is commonly misunderstood. It is best used in conjunction with the parents' involvement in which they confirm that the child awakens when the alarm goes off since the child will often sleep through the alarm. The child then gets up and voids to completion. The alarm therapy may take up to three to four months to be successful. Parents and children need to be educated on its correct use and the labor intensive nature of this therapy. When used correctly, success rates have been reported to be 70-80%25 with low rates of relapse. All forms of pharmacotherapy have lower rates of success and much higher rates or relapse. Behavior modification using techniques such as timed voiding or retention training are not effective tools to address nocturnal enuresis.

Neveus T, Eggert P, Evans J, et al: International Children's Continence Society. Evaluation of and treatment for monosymptomatic enuresis: A standardization document from the International Children's Continence Society. J UROL 2010;183:441-447.

Questions::

A 45-year-old woman has new onset frequency, urgency, and urge incontinence. Urinalysis is negative. Residual urine is 90 ml. CMG reveals phasic detrusor overactivity throughout filling. During volitional voiding, there is simultaneous contraction of the external sphincter. The next step is:

referral for neurological evaluation.

cystoscopy and cytology.

antimuscarinic therapy.

intradetrusor onabotulinum toxin injections.

intradetrusor and intrasphincteric onabotulinum toxin injections.

A

This patient has detrusor external sphincter dyssynergia (DESD)based on the urodynamic evaluation. By definition, this implies the presence of a lesion between the pons and the lower spinal cord. Multiple sclerosis needs to be strongly considered given this patient's demographic information and urodynamic findings. Approximately 5-10%25 of patients with MS present

initially with urologic complaints. Cystoscopy is not indicated, and bladder cancer is not likely in the age demographic and with a negative urinalysis. Antimuscarinic therapy may ultimately be helpful, though the residual would need to be monitored closely in the presence of DESD. Patients should be evaluated for possible neurological process due specifically to the finding of DESD. Onabotulinum toxin injections should not be utilized until a definitive diagnosis has been made.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, pp 2019-2020.

Questions::

A 60-year-old man sustains an avulsion injury of the scrotum. Ninety percent of the scrotal skin is lost. The next step after one week of debridement and local wound care is:

rotational thigh skin flap.

full thickness skin graft.

placement of testicles in thigh pouches.

split thickness skin graft.

scrotal skin mobilization and direct closure.

D

Scrotal reconstruction can be performed in many ways depending on the characteristics of the patient, mechanism of injury, and degree of skin loss. Limited skin loss can be managed with mobilization of remaining scrotal skin and direct closure as the scrotal skin is very pliable and will expand to cover relatively large defects. In this case a 90%25 loss makes this option impossible. More extensive skin loss can be managed with skin grafts, local flaps or tissue expanders. Rotational flaps provide a sensate and hair bearing scrotum but require more extensive dissection and have been generally supplanted by skin grafting. Full thickness skin grafts are reserved for selected cases where small surface areas are required and contraction is especially problematic, but not useful in this case due to 90%25 scrotal loss. Thigh pouches are acceptable but generally temporizing measures except in the most debilitated patients. Reconstruction is most easily accomplished with the use of split-thickness skin grafts which can cover large areas of skin loss and provide for complete scrotal reconstruction. Advantages of split thickness skin grafts include their high success rate and the fact that, when healed, they mimic the rugate appearance of the normal scrotal skin. Disadvantages include lack of hair and the fact that they may retract. Retraction can be minimized by avoiding expansion of the graft (i.e. 2:1 or 3:1 meshing). Skin grafts should never be placed on an acute injury due to bacterial contamination that will usually result in graft loss. Delayed grafting five to seven days post-injury

in the presence of a clean graft bed will result in increased graft take.

Gomez R: Genital skin loss. PROB IN UROL 1994;8:290-301.

Wessells H, Long L: Penile and genital injuries. UROL CLIN N AM 2006;33:117-126.

Questions::

A seven-year-old boy is a restrained front seat passenger in an MVC in which air bag deployment is noted. In the ER, he has right flank pain. Physical exam reveals mild right sided abdominal and CVA tenderness. No hypotension was noted in the field or in the ER. Hgb is 12.5 and urinalysis shows 25 RBC/hpf. The next step is:

observation.

serial CBC and urinalysis.

abdominal ultrasound.

abdominal CT scan with contrast.

cystogram.

D

The kidneys in children, as compared to those in adults are believed to be more susceptible to trauma for numerous reasons including a more pliable thoracic cage, weaker abdominal musculature, less perirenal fat, and lower position in the abdomen. Although there has been past controversy regarding the indications for imaging in children with blunt renal trauma, most studies now suggest that children should be radiographically evaluated in a similar fashion to adults. Thus, they should be imaged when one of the following four criteria are present: 1. A significant deceleration or high-velocity injury such as a high speed MVC, or fall from more than 15 feet, or significant blow to the abdomen, 2. Significant trauma that has resulted in fractures of the surrounding rib cage or spine, 3. Gross hematuria, or 4. Microscopic hematuria (< 50 RBC/hpf) associated with shock (systolic blood pressure less than 90 mm Hg). CT scans are the best form of imaging. In this child, the degree of microscopic hematuria and the absence of shock does not fulfill the criteria for imaging. However, the mechanism of injury where airbag deployment was noted suggests a significant deceleration injury which mandates the need for imaging; thus a CT scan should be performed. The mechanism of injury is probably the most important factor in helping to determine whether imaging is necessary in borderline cases.

Husmann D: Pediatric genitourinary trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 132, p 3930.

Questions::

A 47-year-old woman is undergoing percutaneous test stimulation of a lead for sacral neuromodulation. Plantar flexion and rotation of the foot is noted along with sensation in the buttock. The next step is to:

maintain lead and discharge home.

place the lead one foramen higher and re-test.

place the lead one foramen lower and re-test.

advance the lead deeper into the foramen and re-test.

withdraw the lead to a more superficial location in the foramen and re-test.

C

The motor and sensory responses noted are consistent with incorrect placement of the lead into the S2 foramen. The lead should be removed, replaced one foramen lower (S3), and re-tested. Placing more deep or shallow will not result in appropriate stimulation. Correct placement of the lead into the S3 foramen will result in a Bellows reflex, a contraction of the perineal area, and plantar flexion of the ipsilateral great toe.

Vasavada SP, Rackley RR: Electrical stimulation for storage and emptying disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 64, pp 2148-2149.

Questions::

A 65-year-old man has lethargy, malaise, and a markedly diminished urinary stream. After urethral catheterization, he experiences a postobstructive diuresis that is managed by appropriate fluid replacement. Urine output is 1,500 ml daily. Serum creatinine and BUN are 6.8 mg/dl and 95 mg/dl respectively, and unchanged three days later. The next step is:

continued observation.

retrograde pyelography.

dialysis.

renal ultrasound.

increased fluid replacement.

D

In patients with urinary obstruction and impaired renal function, postobstructive diuresis is not unusual. Typically, urinary catheter drainage produces improvement in the blood levels of creatinine, BUN, and electrolytes to normal levels. If significant improvement does not occur, consideration must be given to inadequate drainage of the upper urinary tract because the bladder is poorly drained (poorly functioning catheter) or because of supravesical obstruction. The latter should be evaluated using renal ultrasound which is less invasive than retrograde pyelography. Since creatinine and BUN have not improved, continued observation is inappropriate until upper tract obstruction is ruled out. No data to suggest the need for immediate dialysis in this patient is provided. There is no evidence the patient is dehydrated, therefore increased fluid replacement is not indicated.

Pais VM Jr, Strandhoy JW, Assimos DG: Pathophysiology of urinary tract obstruction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 37, p 1214.

Questions::

A two-year-old boy with hemihypertrophy should undergo:

twice yearly physical exam of abdomen.

renal ultrasound every three months.

twice yearly urinalysis and urinary metanephrine level.

annual abdominal CT scan.

abdominal MRI scan every six months.

B

Children with hemihypertrophy are at risk for the development of Wilms' tumor due to alterations in the WTR1 and WTR2 genes. The best screening method to allow early detection of a renal mass, without untoward exposure to radiation or excessive cost, is ultrasound every three months through early childhood. Twice-yearly urinalysis and urinary metanephrine are not indicated in this patient, because they are not predisposed to pheochromocytomas.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3904.

Questions::

Autoinflation of an inflatable penile prosthesis is best prevented by:

use of a smaller reservoir.

postoperative partial cylinder inflation.

intraperitoneal reservoir placement.

reservoir placement in subinguinal canal.

use of a reservoir with a lockout valve.

E

Autoinflation occurs when the inflatable penile prosthesis partially inflates with physical activity. It can be minimized by placing the reservoir in the prevesical (retropubic) space performing the back pressure test with reservoirs that do not have a lockout valve or by using a reservoir with a lock-out valve, is now available as an option. The cylinders should also be kept deflated during healing after surgery and when the prosthesis is not being used. Initial experience with this device suggests that it reduces the incidence of this complication.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, pp 795-797.

Questions::

A 45-year-old man undergoes bilateral end to side vasoepididymostomy. Semen analysis six months later demonstrates azoospermia. The next step is:

observation.

measurement of FSH.

clomiphene citrate therapy.

TRUS.

testicular sperm retrieval.

A

The delayed appearance of sperm in the ejaculate of men undergoing vasoepididymostomy (VE)

is common. The mean delay in one reported series was six months (range, 3 to 15 months). The ultimate mean sperm count and motility were found to be similar to subjects with sperm present in the initial semen analysis in this study. Therefore, observation would be the best approach in this situation. The epididymal fluid would have been examined for sperm at the time of VE and the procedure only performed if sperm were identified. Determination of the FSH would not be useful since FSH should be normal in patients with obstructive azoospermia. Clomiphene citrate will raise FSH, LH, and testosterone but not correct the obstruction. TRUS is indicated for ejaculatory duct, not epididymal obstruction. Testicular sperm retrieval is not indicated this early after surgery.

Practice Committee of the American Society for Reproductive Medicine. Vasectomy Reversal. FERT %26 STERIL 2008;90:80.

Jarow JP, Sigman, M, Buch JP, Oates RD: Delayed appearance of sperm after end-to-side vasoepididymostomy. J UROL 1995;153:1156.

Questions::

A four-year-old girl voids normally but is continuously wet. A renal ultrasound shows normal appearing kidneys bilaterally. The next step is:

MAG-3 renal scan.

VCUG.

MRI scan

cystoscopy and vaginoscopy.

retrograde pyelogram.

C

The clinical scenario of dribbling despite normal voiding creates suspicion of an ectopic ureter. Often the ectopic upper pole moiety of the duplex kidney is very small and not easily identified on ultrasound. In these cases an MRI scan or MR urogram are the best imaging tests to localize the difficult to identify small, dysplastic upper poles and their ureters. MR urogram is not always required since the T2-weighted images of a standard MRI are particularly suited for finding and defining fluid-filled structures like an ectopic ureter. Sagittal imaging may demonstrate the exact termination of the ectopic ureter. DMSA scan is most useful in the identification of small ectopic kidneys but is unlikely to be useful when the renal US is normal. If the moiety is small, a MAG-3 renal scan and IVP will appear normal because the upper pole has no function and the lower pole will not be deviated. VCUG will sometimes show VUR into an ectopic ureter depending on the location of the orifice. A retrograde pyelogram can identify the ectopic orifice but the orifice is often difficult to identify cystoscopically and is not as sensitive as an MRI scan.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the

ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, pp 3392-3393.

Questions::

Urodynamic stress urinary incontinence is defined as urinary leakage that occurs:

with a cough-induced detrusor contraction.

during a rise in intraabdominal pressure in the absence of a detrusor contraction.

with a rise in detrusor pressure.

involuntarily per urethra during urodynamic testing.

in the absence of increased in intraabdominal pressure and a voluntary detrusor contraction.

B

Urodynamic stress urinary incontinence is defined as the presence of urinary leakage during a rise in intraabdominal pressure in the absence of a detrusor contraction. The presence of leakage with cough and or sneeze, defines the symptom of SUI. Leakage in the absence of a rise in intraabdominal pressure with a rise in detrusor pressure is the detrusor leak point pressure, most commonly encountered in neurogenic patients. This represents the relationship between bladder storage and outlet resistance.

Peterson AC, Webster GD: Urodynamic and videourodynamic evaluation of voiding dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 58, p 2005.

Abrams P, Cardozo L, Fall M, et al: The standardization of terminology of lower urinary tract function: Report from the Standardization Committee of the International Continence Society. NEUROUROL URODYNAM 2002;21:167-178.

Questions::

A 64-year-old man has painless right testicular swelling of three months duration. Urinalysis is normal, and testicular ultrasound reveals an enlarged right testis with multiple hypoechoic lesions. The most likely diagnosis is:

lymphoma.

chronic lymphocytic leukemia.

spermatocytic seminoma.

teratocarcinoma.

embryonal cell carcinoma.

A

Lymphoma accounts for about 5%25 of all testicular tumors. It is the most common of all testis tumors over the age of 50. The median age of occurrence is approximately 60 years. Lymphoma is the most common secondary neoplasm of the testis. Microscopically, all varieties of reticuloendothelial neoplasms, including Hodgkin's disease, have been described in the testis. The vast majority, however, are diffuse; of these, most are histiocytic. Of germ cell tumors in men over 50, seminoma is most common. However, in the presence of multiple testicular lesions in a 64-year-old man, lymphoma is the most likely diagnosis.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 930-931.

Questions::

In a newborn with penoscrotal hypospadias and nonpalpable testes, the most important test is:

serum for 17-hydroxyprogesterone.

determination of testosterone:dihydrotestosterone ratio.

hCG stimulation test.

pelvic ultrasound.

genitogram.

A

While this child may be male, consideration of the 46XX disorder of sex development secondary to CAH must be entertained. Laboratory evaluations to assess enzymatic adrenal function is the primary concern. FISH evaluation for the presence of a Y chromosome and chromosome analysis should be done as soon as possible. Many of the patients with CAH will be deficient in mineralocorticoids in addition to corticosteroids. Without prompt diagnosis and treatment life-threatening shock may develop due to dehydration and salt loss. All of the other listed options are reasonable tests for the evaluation of disorders of sex development, but will only be performed after CAH is ruled out.

Diamond DA: Sexual differentiation: Normal and abnormal, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 128, pp 3827-3828.

Questions::

A 28-year-old woman has significantly decreased libido six months after starting oral contraceptive pills. The most likely cause of her decreased sexual desire is:

reduced serum estradiol.

reduced serum progesterone.

reduced serum testosterone.

decreased sex hormone binding globulin.

increased serum prolactin.

C

Oral contraceptive pills (OCPs) significantly increase the production and release of sex hormone binding globulin (SHBG) by the liver. The increased SHBG subsequently lowers serum free testosterone by irreversible binding. Low levels of circulating free testosterone can cause a significant decrease in sexual desire/libido. While estradiol may decrease with OCPs, the effect is less striking on libido than the effect of a lower serum testosterone. Progesterone levels may actually increase with some OCPs.

Goldstein I: Urologic management of women with sexual health concerns, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 28, pp 867-868.

Questions::

The best predictor of long-term recurrence-free status in a patient with non-invasive bladder cancer is:

tumor size.

Rb mutation.

tetraploid flow cytometry.

negative random biopsies.

negative cystoscopy three months after a TURBT.

E

Rb mutations (Retinoblastoma Protein) are found in approximately 30%25 of bladder tumors and are correlated with a higher stage disease at time of diagnosis and decreased patient survival. Flow cytometry has not been found to be of more clinical value than conventional cytology in determining tumor recurrence. Low grade tumors are usually diploid, bladder tumors with triploid to tetraploid will be found to have unfavorable pathologic characteristics and a poorer prognosis. Interesting patients with pure tetraploid expression have a more favorable prognosis than those of patients with triploid to tetraploid tumors but worse than diploid tumors. Both tumor size and negative random biopsies have a dramatic impact on progression rate but less on recurrence rate. In patients with a well or moderated differentiated non-invasive bladder cancer, the factor which best predicts the absence of tumor recurrence is a post TURBT negative cystoscopy at three months. If no tumor is present at three months, there is an 80%25 chance of no further tumor recurrence.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2463.

Questions::

Urinary concentration is primarily the result of which characteristic of the kidney:

hypertonic medullary interstitial fluid.

absence of ADH.

hypotonic medullary interstitial fluid.

high levels of ADH.

hypertonic proximal tubular fluid.

A

Although 65%25 of sodium chloride and water are reabsorbed in the proximal tubule, the intraluminal fluid remains iso-osmotic. Urinary concentration takes place as the tubular fluid flows through the medullary collecting ducts. The medullary interstitial hyperosmolarity in the presence of normal plasma concentrations of ADH causes water to diffuse out of medullary collecting ducts into the interstitial fluid and then into the medullary blood vessels. High ADH levels produce a more concentrated urine and low levels produce a more dilute urine.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1146-1154.

Questions::

A 60-year-old healthy woman with recurrent UTIs has free air in the bladder and a thickened bladder wall adjacent to a loop of thickened colon see on CT scan. Cystoscopy demonstrates erythema in the bladder wall with no clear fistula. The next step is:

antibiotic prophylaxis.

high pressure cystogram.

CT scan with small bowel follow through.

MRI scan.

general surgery consult/exploratory laparotomy.

E

Cross-sectional imaging, especially CT scan, has become the imaging modality of choice to demonstrate a vesicoenteric fistula. CT or MRI scans may localize the fistula track as well as the involved segment of bowel. The triad of findings on CT that are suggestive of colovesical fistula consists of (1) bladder wall thickening adjacent to a loop of thickened colon, (2) air in the bladder (in the absence of previous lower urinary tract manipulation), and (3) presence of colonic diverticula. Cystoscopy has the highest yield in identifying a potential lesion, with some type of abnormality noted on endoscopic examination in more than 90%25 of cases. However, the findings on cystoscopy are often nonspecific and include localized erythema and papillary or bullous change; a definitive diagnosis by cystoscopy can be made in only 35%25 to 46%25 of cases. This patient has clear evidence of a vesicoenteric fistula and further diagnostic studies are not indicated. Should she be a poor surgical risk, long-term antibiotics could be used. Definitive colonic resection of presumed diverticulosis and repair of fistula should occur with exploratory laparotomy. General surgery may wish to proceed with colonoscopy/barium enema to evaluate the extent of the affected segment or rule-out malignancy.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2351-2352.

Questions::

A 26-year-old man undergoes a left radical orchiectomy for seminoma. CT scan reveals two 3 cm interaortocaval nodes. Two weeks after orchiectomy, the AFP is unchanged at 25 IU/ml and beta-hCG is 8 mIU/ml. The next step is:

infradiaphragmatic XRT.

cisplatin-based chemotherapy.

infradiaphragmatic plus supradiaphragmatic XRT.

RPLND.

RPLND plus cisplatin-based chemotherapy.

B

Although the histological diagnosis is seminoma, the elevated alpha-fetoprotein is indicative of a non-seminomatous testis tumor, and the patient should be managed as such. The orchiectomy specimen should be re-evaluated in detail to look for an additional germ cell elements. Given the findings on the CT scan, this patient has a clinical Stage IIB tumor. Based on the data available in the literature, it appears these patients are best served with initial chemotherapy rather than RPLND following the inguinal orchiectomy. The most widely utilized regimen today is three cycles of bleomycin, etoposide (VP-16), and cisplatin. If residual nodal tissue is evident after the multidrug chemotherapy, surgical excision is recommended. With the evolution of effective multi-drug regimens, radiation therapy is no longer utilized in the management of Stage IIB non-seminomatous testis tumors.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, pp 896-897

Questions::

A four-year-old uncircumcised boy has a two-week history of foreskin swelling with urination. The retained urine under the foreskin drains slowly following completion of voiding. There is no dysuria or hematuria. Physical exam reveals mild erythema of the distal foreskin and a phimotic ring. The meatus cannot be visualized. The next step is:

observation.

sitz baths.

topical steroid ointment.

dorsal slit.

circumcision.

C

The patient has pathologic phimosis that does not allow adequate urinary drainage. Observation is only appropriate in the setting of physiologic phimosis in which the foreskin is not retractable due to normal physiologic adhesions, as opposed to pathologic phimosis, which is development of a dense fibrotic ring from chronic inflammation. Treatment of pathologic phimosis with a topical steroid ointment (0.05%25 betamethasone) is effective in up to 90%25 of cases in relieving the phimosis and allowing adequate retraction of the foreskin. If the patient had more acute problems such as severe balanitis or more obstructive voiding symptoms then surgical intervention with a dorsal slit or circumcision may be appropriate. Sitz baths alone are unlikely to rectify the problem.

Orsola A, Caffaratti J, Garat JM: Conservative treatment of phimosis in children using a topical steroid. UROL 2000;56:307-310.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, p 3238.

Questions::

A 65-year-old man has been using 20 mg of tadalafil (Cialis^{TM}) as needed for treatment of erectile dysfunction. His primary care provider starts him on doxazosin for hypertension. His treatment of erectile dysfunction should include:

continue tadalafil 20 mg as needed.

decrease tadalafil to 10 mg as needed.

start tadalafil for once daily use at 5 mg/day.

stop tadalafil.

switch to intracorporal alprostadil.

B

Concomitant use of alpha-blockers and PDE-5 inhibitors can cause hypotension. When tadalafil is coadministered with an alpha-blocker, patients should be stable on alpha-blocker therapy prior to initiating treatment with tadalafil, and tadalafil should be initiated at the lowest recommended dose. Conversely, when starting an alpha-blocker the lowest dose of either agent should be used and they should not be taken at the same time. There is no need to stop tadalafil in this patient or switch to intracorporal injections if he has been successful on oral therapy. Of all the choices, decreasing to the lowest effective dose of tadalafil (10 mg for use as needed, or 2.5 mg/day for once daily use) would be recommended for this man.

Lue TF, Broderick GA: Evaluation of nonsurgical management of erectile dysfunction and premature ejaculation, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9.

Philadelphia, Saunders Elsevier, 2007, vol 1, chap 22, pp 773-777.

Questions::

A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Her replacement therapy consists of cortisone and fluorocortisone. Three years later, she complains of visual disturbances and has skin hyperpigmentation. The most likely explanation is:

Addison's disease.

pituitary adenoma.

excessive cortisone replacement.

excessive ACTH production.

ectopic melanocyte-stimulating hormone secretion.

B

Approximately 10-20%25 of patients who have had a bilateral adrenalectomy for Cushing's Syndrome later develop pituitary tumors that are almost always chromophobe adenomas (Nelson's syndrome). Progressive hyperpigmentation (due to melanocyte stimulating hormone release by corticotropic releasing hormone), headaches, and visual disturbances are due to the expanding adenoma that is diagnosed by MRI or CT scans of the sella turcica. Pituitary basophilic adenoma that was initially postulated by Cushing as causing the syndrome named for him has, in fact, rarely been a factor. Addison's disease describes primary adrenal insufficiency not as a result of bilateral adrenalectomy. Excessive cortisone replacement would result in a Cushingoid appearance (purple striae, buffalo hump, central obesity). Excessive ACTH production is not the end result of bilateral adrenalectomy. Although, increased skin pigmentation could be a result of ectopic melanocyte stimulating hormone secretion the other symptoms would not.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1821.

Questions::

Prolapse of a vesicostomy is best avoided by:

making the stoma no bigger than 12 Fr.

resecting excess bladder wall tissue.

placing the stoma at the bladder dome.

circumferential suturing of bladder to rectus fascia.

placing a stoma midway between symphysis pubis and umbilicus.

C

When the bladder dome is brought out for the vesicostomy, it effectively immobilizes the posterior wall of the bladder, preventing its prolapse out the vesicostomy stoma. The bladder dome can be reliably identified by seeing and dividing the urachal remnant. Resecting bladder tissue is contraindicated to facilitate future undiversion. The other possibilities will not prevent prolapse if the vesicostomy is performed on the anterior wall of the bladder.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3593.

Questions::

Hypercoagulability in patients with ESRD secondary to nephrotic syndrome is due to:

hypohomocystinenemia.

urinary loss of antithrombin III.

retention of protein S.

retention of protein C.

decreased antiphospholipid antibodies.

B

A hypercoagulable state can occur in the nephrotic syndrome with urinary loss of the natural anticoagulants: antithrombin III, protein C, and protein S. Hyperhomocysteinemia is common in ESRD, and has been associated with thrombophilia. Antiphospholipid antibodies are found in 30%25 to 50%25 of patients with systemic lupus erythematosus, a cause of ESRD. Loss of antithrombin III and increased antiphospholipid antibodies increase the risk of thrombosis of renal allografts, dialysis access devices, and post-operative thromboembolic events. Thus, anticoagulation should be considered in these patients.

Barry JM, Jordan ML, Conlin MJ: Renal transplantation in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds):

CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 40, p 1299.

Questions::

The most frequent complications associated with the use of mitomycin C for intravesical therapy are:

chemical cystitis and rash.

myelosuppression and rash.

flu-like symptoms and myelosuppression.

contracted bladder and chemical cystitis.

myelosuppression and chemical cystitis.

A

Rash occurs in 9%25 of patients receiving mitomycin C instillations, and may represent a contact dermatitis. Chemical cystitis has been reported in 6-41%25 of patients managed with this agent. The molecular weight of mitomycin C is so high that little is absorbed and myelosuppression is rare. A contracted bladder is also rare after mitomycin C treatment. Flu-like symptoms, which are commonly seen after BCG and interferon therapy, are uncommon after intravesical chemotherapy.

Taneja SS, Chan S: Complications of intravesical therapy, in Taneja SS, Smith RB, Ehrlich RM (eds): COMPLICATIONS OF UROLOGIC SURGERY. PREVENTION AND MANAGEMENT, ed 3. Philadelphia, WB Saunders Company, 2001, chap 8, p 87.

Jones JS, Campbell SC: Non-muscle-invasive bladder cancer (Ta, T1, and CIS), in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 76, p 2459.

Questions::

A one-year-old boy with a familial bleeding disorder receives I.V. DDAVP prior to a hypospadias repair. Appropriate fluid management would include:

1/4 NS intraoperatively; encourage p.o. fluids postoperatively.

1/4 NS intraoperatively; continue I.V. fluids for four hours postoperatively.

1/4 NS intraoperatively; drink to thirst postoperatively.

NS intraoperatively; encourage p.o. fluids postoperatively.

NS intraoperatively; drink to thirst postoperatively.

E

DDAVP causes retention of free water. Intravenous fluids should be iso-osmotic, and oral fluids should not be pushed, but taken according to thirst. Dangerous hyponatremia can otherwise be induced by the administration of hypoosmotic fluids during surgery, or by overencouraging oral fluids postoperatively.

Robertson, JM: Pediatric fluid management, in Docimo, SG, Canning, DA, Khoury, AE (eds): THE KELALIS-KING-BELMAN TEXTBOOK OF CLINICAL PEDIATRIC UROLOGY. London, Informa Healthcare, 2007, p 223.

Questions::

A 66-year-old man had a radical prostatectomy six years ago for localized prostate cancer. He has had no evidence of recurrence and an undetectable PSA. He now has loss of libido, declining muscle mass, lethargy, and erectile dysfunction. His serum testosterone is 160 ng/dl, and his LH and prolactin levels are normal. The next step is:

explain that testosterone is contraindicated.

delay testosterone treatment until he is disease free for ten years.

start testosterone after a thorough discussion.

start yohimbine.

start PDE5 inhibitor.

C

Men successfully treated for prostate cancer and suffering from symptomatic hypogonadism may become candidates for androgen therapy, if there is no evidence of residual cancer after a prudent interval. The risks and benefits must be clearly understood by the patient. Close follow-up is required. Phosphodiesterase inhibitors may be used for first-line therapy of erectile dysfunction, but do not adequately address systemic manifestations of hypogonadism. In hypogonadal men, combined treatment has been reported. Yohimbine is not recommended for the treatment of erectile dysfunction.

Morales A, Morley J, Heaton JPW: Androgen deficiency in the aging male, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 27, p 861.

Montague DK, Jarow J, Broderick GA, et al: The management of erectile dysfunction: An update. MANAGEMENT OF ERECTILE DYSFUNCTION GUIDELINE. American

Urological Association Education and Research, Inc, 2005. <u>http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=ed</u>

Questions::

A 79-year-old man with congestive heart failure has gross hematuria. CT urogram reveals a 6 mm distal right ureteral filling defect. Right ureteral washing for cytology are positive for high grade carcinoma. Serum creatinine of 1.9 mg/dl is stable. The next step is:

retrograde pyelogram and ureteral washing in four months.

ureteral stent placement and intravesical BCG.

ureteroscopic biopsy and laser ablation.

distal ureterectomy and reimplantation.

nephroureterectomy.

C

This patient is elderly, has compromised medical and renal status and probably has a distal ureteral urothelial carcinoma. While optimal therapy in a younger, healthier patient would be distal ureterectomy and reimplantation, this patient would be well-served with endoscopic management. In the setting of subcentimeter lesions such as this one initial ureteroscopic ablation with followup ureteroscopy and surveillance is likely to be associated with equivalent control rates to distal ureterectomy and would avoid major abdominal surgery in this patient with heart failure.

Sagalowsky AI, Jarrett TW: Management of urothelial tumors of the renal pelvis and ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 49, pp 1673-1676.

Questions::

A 25 cm segment of ileum is isolated for bladder augmentation and reconfigured into a ''U'' shape. A sagittal incision of the bladder is made. The most dependent portion of the intestinal patch will not reach the apex of the incision by the bladder neck even after the mesentery is aggressively mobilized. The next step is:

reconfigure the intestine into an ''S'' shape.

incise both sides of the peritoneum overlying the mesentery.

ligate branching vessels of the vascular arcade.

partially close the anterior wall of the bladder.

isolate an additional intestinal segment for composite augmentation.

B

When an intestinal patch will not reach the deep pelvis in a tension free manner, the first step should always be aggressive mobilization of the root of the mesentery. When this fails to achieve the desired length, transverse incisions of the peritoneum should be performed on both sides of the mesentery in a step wise fashion. This can result in significant lengthening of the mesentery. Ligation of vessels should only be done as a last resort to avoid vascular compromise to the bowel segment. Psoas hitch has also been described, but will not help move the apex of the sagittal incision by the bladder neck which is fixed. Reconfiguration will not gain more length and closure of the anterior bladder wall will risk the development of an hourglass deformity.

Levine LA: Stepladder incision technique for lengthening of bowel mesentery. J UROL 1992;148:351-352.

Baig MK, Weiss EG, Nogueras JJ, Wexner SD: Lengthening of small bowel mesentery: Stepladder incision technique. AM J SUR 2006;191:715-717.

Questions::

A 67-year-old man develops erythema and mild tenderness in the scrotum six weeks following placement of a three-piece inflatable penile prosthesis. He has no tenderness or erythema in the penile shaft or suprapubic area. The best treatment is:

oral antibiotic therapy for six weeks.

I.V. antibiotic therapy for six weeks.

removal and replacement of the scrotal pump.

removal of the entire device and replacement in six months.

removal of the device with washout and immediate replacement.

E

This patient clearly demonstrates an early prosthetic infection manifested around the scrotal

pump. Treatment of a prosthetic infection with antibiotics usually results in clinical improvement but is almost never the definitive treatment and the infection will recur. This is due to microorganisms within a biofilm that is adherent to the device and the inability to sterilize the device or the biofilm once these organisms are present. When a prosthetic infection is present, all components of the prosthesis should be removed. If they are removed a new device should be replaced as soon as is feasible (within six to eight weeks) to decrease the amount of fibrosis and significant penile shortening which will occur. Mulcahy introduced the concept of immediate prosthesis salvage for infection which has been able to salvage as many as 85%25 of these patients and prevent penile shortening. His protocol involves removal of all prosthetic components followed by irrigation with seven antibacterial solutions. Others have reported on using different numbers and types of solutions. Mechanical irrigation and removal of the biofilm appears to be the key principle of this technique. A new device is implanted immediately after irrigation, and the patient is prescribed antibiotics. When salvage procedures are successful, they maintain penile size and correct the problem with only one operation.

Montague DK: Prosthetic surgery for erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 23, p 801.

Questions::

When performing urinary diversion, the gastrointestinal segment associated with the highest potassium loss is:

stomach.

jejunum.

proximal ileum.

distal ileum.

colon.

E

It is important to know the electrolyte content of the fluid from the various bowel segments in order to replace abnormal fluid losses from these segments. Serum electrolyte complications and the type of electrolyte abnormalities that occur are different, depending on the segment of bowel used. If stomach is employed, a hypochloremic metabolic alkalosis may occur. If jejunum is the segment used, hyponatremia, hyperkalemia, and metabolic acidosis occur. If the ileum or colon is used, a hyperchloremic metabolic acidosis ensues. Hypokalemia and total-body depletion of potassium may occur in patients with urinary intestinal diversion. This is more common in patients with ureterosigmoidostomies than it is in patients who have other types of

urinary intestinal diversion. The use of ureterosigmoidostomies has decreased significantly. It has been shown that ileal segments exposed to high concentrations of potassium in the urine reabsorb some of the potassium, whereas colon is less likely to do so. Thus, those with ileum interposed in the urinary tract likely blunt the potassium loss by the kidney, whereas those with colon do not, thus explaining why patients with ureterosigmoidostomies and ureterocolonic diversions are more likely to have total-body potassium depletion.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2570-2573.

Questions::

A seven-year-old boy has recurring abdominal pain one to two times per month. Episodes consist of left flank discomfort, nausea, and vomiting. On ultrasound, there is mild left hydronephrosis. A MAG-3 Lasix renal scan shows 50%25 differential function and a T1/2 of eight minutes bilaterally. Two urinalyses demonstrate 2-5 RBCs/hpf. The test most likely to yield the diagnosis is:

non-contrast CT scan.

VCUG.

MR urogram.

ultrasound of kidneys during pain.

left antegrade renal perfusion study (Whitaker).

D

The history suggests intermittent UPJ obstruction and the associated "Dietl's crisis." Dietl's crisis is intermittent abdominal pain associated with nausea and vomiting following an episode of high fluid intake. Although a renal scan with Lasix is used in an attempt to prompt the crisis, it may on occasion be falsely negative. In these patients, it is best to repeat a renal ultrasound at the time of pain and compare this to a baseline renal ultrasound taken when the patient was asymptomatic. If increased hydronephrosis at the time of symptoms is present, it is diagnostic and the pyeloplasty will be curative. Placement of a double J stent in this patient population is not usually helpful since the discomfort of the stent will usually preclude its diagnostic usefulness. A Whitaker test is invasive and usually reserved to evaluate for the presence of obstruction in a hydronephrotic kidney with poor renal function, i.e., kidney < 25%25 differential function, or in a patient where the serum creatinine two times elevated for age or creatinine of greater than or equal to 2 mg/dl in the adult, in these later circumstances, renal scans will usually be falsely positive for obstruction due to poor renal function. A VCUG will not be helpful

in this patient. Even if VUR is present, it is not the source of the patient symptoms. MR urogram and a noncontrast CT scan are not effective or useful on asymptomatic patients.

Tsai JD, Huang FY, Lin CC, et al: Intermittent hydronephrosis secondary to ureteropelvic junction obstruction: Clinical and imaging features, PED 2006;117:139-146.

Questions::

A 67-year-old woman is undergoing surgery for repair of a post-hysterectomy vesicovaginal fistula located above the trigone with communication to the vaginal vault. A vaginal repair is selected. The best flap to interpose is:

peritoneal.

omental.

Martius.

labial myocutaneous.

gracilis.

A

During a vaginal approach to a high riding post-hysterectomy fistula, a peritoneal flap is preferred. It is relatively easy to raise a well vascularized flap of peritoneum in this location. A Martius flap would be very difficult to mobilize to that location in the vagina without compromising the blood supply. An omental flap is occasionally useful from a vaginal approach if it had previously been secured in the pelvis from prior surgeries. A gracilis flap can be utilized but is typically not necessary for vesicovaginal fistulae. A labial myocutaneous flap can be utilized particularly if there is significant foreshortening of the vagina or loss of vaginal mucosa.

Rovner ES: Urinary tract fistula, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 72, pp 2339-2341.

Questions::

The drug that can be reabsorbed by an ileal neobladder and result in toxic serum levels is:

phenytoin.

trimethoprim-sulfamethoxazole.

sildenafil.

warfarin.

furosemide.

A

Drugs which are excreted by the kidneys unchanged may be resorbed by the intestinal mucosa in urinary diversions, leading to toxic serum levels. Phenytoin is the only drug listed excreted into the urine unchanged and associated with toxicity in the setting of a urinary diversion. Other commonly used drugs that can be reabsorbed include methotrexate, lithium carbonate, and theophylline.

Dahl DM, McDougal WS: Use of intestinal segments in urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 80, pp 2573-2574.

Questions::

Gadolinium based contrast, compared to iodinated contrast, in patients on dialysis have a greater risk of:

anaphylactic reaction.

nephrotoxicity.

itching.

systemic fibrosis.

congestive heart failure.

D

Nephrogenic systemic fibrosis (NSF) is a disorder characterized by tissue fibrosis that primarily occurs in dialysis patients following the administration of gadolinium contrast for radiologic studies. The other distractors listed: anaphylactic reaction, nephrotoxicity (patient is already on dialysis), pruritus and congestive heart failure do not occur more frequently following gadolinium than iodinated contrast agent. Studies suggest a strong association between the use of gadolinium based MRI contrast agents and the subsequent development of NSF in patients with renal disease. Gadolinium based MRI contrast agents are chemical chelates with the gadolinium ion bound by a linear or cyclic molecule. Since free gadolinium ions are toxic and poorly excreted, safety completely rests on the ability of the chelate molecule to prevent gadolinium release. The kidneys solely excrete these agents and their half-life prolongs from one

to two hours to over 30 hours with severe renal dysfunction. Renal failure allows a situation where gadolinium based MRI contrast agents reside within patients for long periods of time potentially allowing for toxic levels of free gadolinium ions to build-up, deposit in tissues, and subsequently lead to fibrosis. Therefore, patients in ESRD requiring dialysis are at a greater risk of NSF.

Kuo PH, Kanal E, Abu-Alfa AK, Cowper SE: Gadolinium-based MR contrast agents and nephrogenic systemic fibrosis. RAD 2007;242:647-649.

Questions::

A six-month-old infant with severe pulmonary hypertension is on I.V. sildenafil at the dose of 1.2 mg/kg every six hours. After two days, he is successfully weaned off inhaled nitric oxide. He develops a sustained erection that has lasted 12 hours. The next step is:

observation.

discontinue I.V. sildenafil.

lower I.V. sildenafil dose.

switch to oral sildenafil.

re-initiate inhaled nitric oxide.

C

Sildenafil has been very effective in treating pulmonary hypertension in infants and adults and was approved by the FDA in 2005. Many multi-institutional studies have demonstrated its safety and efficacy in this population. Doses for treatment of pulmonary hypertension are much higher than doses used to treat erectile dysfunction (po - 100 mg TID in children and adults, IV 1.2 mg/kg I.V.). This has led to a higher incidence of adverse events including dizziness, headache, flushing, rhinitis and prolonged erection. There have been several reports of prolonged erection in children using high I.V. doses. These patients have responded to simply lowering the dose of sildenafil. This patient has shown an excellent response to treatment with I.V. sildenafil (since he has been successfully weaned off inspired nitric oxide) of his life-threatening pulmonary hypertension and it should be continued. Observation is not appropriate with a prolonged erection of this type. No data is available on either switching to oral administration or to a different PDE5 inhibitor.

Huddleston A, Knoderer C, Morris J, Ebenroth, E: Sildenafil for the treatment of pulmonary hypertension in pediatric patients. PED CARD 2009;30:875-878.

Questions::

A 67-year-old man with a clinical stage T2bN0M0 Gleason 6 prostate cancer with a PSA of 7.8

ng/ml is treated with 70 Gy external beam XRT. His PSA nadirs to 0.8 ng/ml six months after therapy. Six months later, he is asymptomatic, has a normal DRE, and a PSA of 6.5 ng/ml. The most likely explanation for the elevated PSA level is:

prostatic infarct.

persistent prostate cancer.

PSA bounce effect.

radiation-induced prostatitis.

insufficient period of observation after therapy.

B

A marked increase in serum PSA after a nadir within six months of external beam XRT is a sign of persistent local or occult metastatic prostate cancer and has a poor prognosis. Radiation induced cellular injury or prostatitis may cause a minor rise in PSA which usually returns to normal within a few weeks. A "bounce" can be defined as a rise greater than 0.2 ng/ml followed by a durable decline and is especially common after brachytherapy, where it is reported to occur in 24%25 to 35%25 of men. These can start any time from 9 to 30 months after brachytherapy with the majority of patients having a cumulative PSA rise of not more than 2 to 3 ng/ml. Prostatic infarct is rare following radiation therapy for prostate cancer, and would likely be associated with a significantly elevated PSA.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 1998, chap 92, p 3147.

D'Amico AV, Crook J, Beard CJ, et al: Radiation therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 100, pp 3009-3011, 3013.

Questions::

A one-month-old girl with severe congenital heart disease had an episode of urosepsis. She has a solitary kidney with upper pole hydroureteronephrosis. Her renal scan shows 33%25 function in the upper pole with UVJ obstruction and a massively dilated upper pole ureter. The lower pole system is normal. The VCUG shows no reflux. The next step is antibiotic prophylaxis and:

percutaneous nephrostomy.

tapered upper pole reimplant.

upper pole distal cutaneous ureterostomy.

upper pole to lower pole distal ureteroureterostomy.

upper pole heminephroureterectomy.

C

This infant has an obstructed upper pole ureter in a solitary kidney and suffered urosepsis. Surgical intervention is indicated. Her age, severe pulmonary and cardiac disease makes all upper abdominal surgery unattractive. Since she has a significant portion of her renal function in the upper pole a heminephrectomy is incorrect. Anastomosis of the massively dilated upper pole system to the normal lower pole system is technically difficult either at the level of the renal pelvis or the ureter. Percutaneous nephrostomy tubes can be a short term-answer in a critically ill child but they have complications including chronic infection, calculus formation, and displacement. Tapered reimplantation in a child of this age is technically challenging because of the small bladder. The best treatment is a cutaneous ureterostomy that will allow adequate drainage and prevent infection until definitive surgery is safe. It will also allow the dilated upper pole system to decompress and reconfigure the ureter.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, p 3393.

Questions::

A 35-year-old woman with advanced multiple sclerosis and very impaired manual dexterity has severe urinary urgency and incontinence that does not respond to high dose antimuscarinic therapy. Urodynamics confirms neurogenic detrusor overactivity with a detrusor LPP of 70 cm H2O. The best long-term treatment option is:

urethral catheter placement.

onabotulinum toxin injection of the bladder.

sacral neuromodulation.

augmentation cystoplasty.

ileal conduit.

E

Off-label onabotulinum toxin injection and augmentation cystoplasty place the patient at high risk for needing to perform CIC, which is not feasible in a patient with poor manual dexterity.

Sacral neuromodulation is not FDA-approved for patients with neurogenic bladder nor can patients with an implanted neuromodulator undergo MRI, a study that has a high likelihood of being necessary in a patient with MS. The best choice for this patient is an ileal conduit. When possible, chronic urethral catheter placement should be avoided as it can result in significant urethral loss, UTIs, stones, and an increased risk of bladder malignancy. While not the recommended treatment, if long-term catheter drainage is chosen, a suprapubic tube is preferable to a urethral catheter, with careful long-term follow-up required.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2011.

Questions::

A 50-year-old woman has acute left flank pain. Her hemoglobin is 7 gm/dl, and creatinine 2.1 mg/dl. CT scan shows a 15 cm lower-pole left renal mass and a large perinephric hematoma. There are low-density areas (Hounsfield units of -30) within the mass. After transfusion, the next step is:

observation.

selective angiographic embolization.

radical nephrectomy.

partial nephrectomy.

radio frequency ablation.

B

The negative Hounsfield units on the CT scan indicate the presence of fat in the tumor, showing that this is a renal angiomyolipoma which has bled acutely. Angiographic embolization is often successful in these tumors, can be performed quickly without the need for general anesthetic, and can usually preserve the normal portion of the kidney. If a patient has tuberous sclerosis, bilateral disease, preexisting renal insufficiency, or other medical or urologic disease that could affect renal function in the future, selective embolization should be considered as the treatment. An alternative would be lower pole partial nephrectomy, once the patient is stabilized, but not in the acute setting as often times radical nephrectomy would be required. This would put this patient at significantly increased risk of dialysis. Laparoscopic nephrectomy would be very difficult in the face of recent acute hemorrhage. Radio frequency ablation should not be used for such a large tumor.

Campbell SC, Novick AD, Bukowski RM: Renal tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 47, p 1580.

Questions::

A three-year-old boy with sickle cell disease has painful priapism for two hours. Initial management should include intravenous hydration, pain management, O₂ supplementation and:

oral pseudoephedrine.

exchange transfusion.

aspiration of the corporal bodies with instillation of dilute phenylephrine.

Winter's shunt.

cavernosaphenous vein shunt.

A

Priapism occurs in males with all forms of sickle cell anemia but most commonly the sickle cell disease. When presenting in childhood it may be associated with impotence later in life. A precipitating event should be searched for, such as drug usage, medications used for impotence (not in the pediatric population), infection, trauma, or psychoactive medications. Hydration and opioid analgesic are the mainstays of management of all forms of sickle cell pain. Oxygen is indicated when the patient is hypoxic. Erection results from relaxation of the smooth muscles of arterioles and trabeculae in the corpora, and detumescence is the result of smooth muscle contraction, opening emissary veins and increasing venous drainage. Therefore, detumescence should be facilitated by alpha-adrenergic agonists such as pseudoephedrine (a pure alpha-adrenergic agent). These agents induce contraction of the smooth muscle of the trabecular arteries of the cavernosa, forcing blood out of the cavernosa and promoting detumescence. Exchange transfusions are used after conservative methods mentioned above fail. Aspiration/injection or invasive shunts are used only if detumescence is not achieved by pharmacological methods.

Rogers ZR: Priapism in sickle cell disease. HEM/ONC CLIN N AM 2005;9:917-928.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 21, p 718.

Montague DK, Jarow J, Broderick GA, et al: Guideline on the management of priapism. MANAGEMENT OF PRIAPISM GUIDELINE. American Urological Association Education and Research, Inc, 2003. <u>http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=priapism</u>

Questions::

A 59-year-old man with Parkinson's disease complains of decreased force of stream, urinary frequency, urgency, and recurrent UTI. PVR is 200 cc. The next step is:

uroflowmetry.

pressure flow urodynamics.

chronic suppressive antibiotics.

CIC.

TURP.

B

Voiding dysfunction in men with Parkinson's disease can be a result of a multitude of factors, including outlet obstruction related to the prostate, detrusor-striated sphincter pseudodyssynergia, and rarely true dyssynergia. While detrusor overactivity is the most common urodynamic finding in this population, poor detrusor contractility or areflexia may also be seen. Although chronic suppressive antibiotics, tamsulosin, and CIC are not unreasonable options, urodynamics studies should be performed prior to proceeding with any therapy, no matter how simple, to ensure that the proper course is being taken.

Wein AJ: Lower urinary tract dysfunction in neurologic injury and disease, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 59, p 2018.

Questions::

A 60-year-old man with erectile dysfunction has an impalpable right testicle. Ultrasound reveals a 2 x 2 cm homogeneous ovoid mass at the right internal ring. The next step is:

observation.

serial ultrasounds.

percutaneous biopsy.

orchidopexy.

orchiectomy.

A

The peak age of onset of testicular cancer is between 25 and 35 and cryptorchidism is the only know risk factor for testicular cancer. However the risk of developing a testis tumor in an undescended testis drops dramatically after age 30. It has been calculated that the risk of dying from testis cancer after age 32 is outweighed by the risk of surgical mortality, though others have suggested a cutoff of 50. At age 60, this patient should be reassured and does not require serial ultrasounds.

Rozanski TA, Bloom DA: The undescended testis. Theory and management. UROL CLIN N AM 1995;22:107-118.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 893.

Questions::

A three-year-old boy who underwent a surgical correction for a high imperforate anus has inability to toilet train. VCUG reveals a large trabeculated bladder, grade 3 left VUR and incomplete bladder emptying. Ultrasound of the abdomen shows two normal kidneys. The next step is:

spinal ultrasound.

spinal MRI scan.

alpha-blocker.

CIC.

vesicostomy.

B

Spinal cord abnormalities, including tethered cord or thickened or fatty filum terminale and lipoma have been noted in 20-50%25 of patients with imperforate anus. The severity of the lesion is proportional to the severity of the rectal lesion. In this case, the patient has a high-imperforate anus. VCUG reveals trabeculation, VUR into one kidney, and incomplete bladder emptying - a collection of findings for possible neurogenic bladder dysfunction. The best test is an MRI scan to rule-out spinal cord lesions since the kidneys are presently normal and the bladder has some subtle findings. Due to ossification of the spine a spinal ultrasound cannot rule-out a tethered spinal cord after three months of life. Vesicostomy, CIC, and antimuscarinic and alpha-blocker medications are premature at this point without formal diagnosis of neurogenic bladder and urodynamic study.

Yeung CK, Sihoe JD, Bauer SB: Voiding

dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3647-3648.

Questions::

A 53-year-old woman reports leakage with sneezing and exercise. On physical exam, after voiding, she had no significant prolapse or leakage with coughing and strain. A voiding diary reveals three leaks per day over three days, and pad test reveals 40 gram weight gain each day of testing. Pelvic floor muscle training does not help the leakage. The next step is:

full bladder supine stress test.

VCUG.

antimuscarinic therapy.

periurethral injection.

midurethral sling.

A

This patient has symptomatic stress urinary incontinence (SUI), though none is noted on exam. She should not be treated invasively for SUI without documentation on exam. A positive pad test could be the result of urgency leakage, even though she does not report it, as could leaks reported on a voiding diary. She should return for a full bladder stress test done supine and repeated standing if necessary. If that remains negative, urodynamics could be offered to try to better delineate her leakage. VCUG will not add to the diagnostic evaluation in this case, as leakage noted during that test is still not diagnostic of SUI. Antimuscarinics should not be offered in the presence of primarily SUI complaints.

Nitti VW, Blaivas JG: Urinary incontinence: Epidemiology, pathophysiology, evaluation, and management overview, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 60, p 2059.

Questions::

A 62-year-old man who seven years earlier received XRT for prostate cancer undergoes TURBT for a pT2 bladder cancer. Metastatic work-up is negative. He desires orthotopic neobladder diversion. At the time of cystectomy, the bowel appears healthy and urethral frozen section is negative. The following diversion should be performed:

orthotopic neobladder using right colon.

orthotopic neobladder using distal ileum.

continent cutaneous diversion.

ileal loop conduit.

transverse colon conduit.

B

Previously, prior pelvic radiation therapy was an absolute contraindication to orthotopic neobladder. However, recent reports have demonstrated that this can be a safe and effective form of diversion in properly selected patients. Astute intraoperative tissue assessment and determination of the condition of the urethra, ureters, and bowel must be done to limit complications and to provide the best possible clinical outcomes. In this case, it would be safe to proceed with orthotopic neobladder. Distal ileum is preferred to right colon in this setting. Right colon is less mobile and more difficult to detubularize than ileum. Preoperatively, the patient needs to be counseled that he is at higher risk for urinary incontinence.

Stein JP, Skinner DG: Orthotopic urinary diversion, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 82, p 2613.

Questions::

A 45-year-old woman undergoes evaluation for recurrent calcium phosphate stones. Serum calciums range from 9.6-10.0 mg/dl ; PTH 62 pg/dl; urine calcium 281 mg/day (normal < 200 mg/day); and urinary citrate 460 mg/day (normal > 320 mg/day). To further elucidate her metabolic diagnosis, she should be placed on a two week course of:

thiazide.

mercaptoproprinoglycine.

sodium cellulose phosphate.

orthophosphate.

potassium citrate.

A

This patient has a picture equivocal for primary hyperparathyroidism with hypercalciuria, serum calcium at the upper limits of normal and a high, but normal serum PTH value. A "thiazide challenge" would help to differentiate renal hypercalciuria from primary hyperparathyroidism. After treating her with a thiazide diuretic for two weeks, her serum calcium and PTH should remain within normal limits and her urinary calcium should return to normal if she has renal hypercalciuria. If, however, she has true hyperparathyroidism, she would become overtly hypercalcemic and her serum PTH would become elevated with no significant change in the urinary calcium excretion. The other agents will not help elucidate her underlying metabolic abnormalities.

Preminger GM: Medical management of urinary calculus disease. Part I: Pathogenesis and evaluation. AUA UPDATE SERIES 1995, vol 14, lesson 5, pp 38-43.

Eisner BH, Ahn J, Stoller ML. Differentiating primary from secondary hyperparathyroidism in stone patients: the "thiazide challenge". J ENDOUROL 2009;23:191-192.

Questions::

After traumatic renal injury, the predictors of persistent bleeding are depth of parenchymal injury, presence of arterial blush, and:

urinary extravasation.

devitalized fragment.

thickness of hematoma.

location of laceration.

mechanism of injury.

C

After renal trauma, the likelihood of renal exploration, renorraphy, and nephrectomy is associated with the grade of injury. For example, Grade 4 injuries have a 64 fold higher likelihood of needing nephrectomy than a Grade 1 injury. New literature shows that for grade 3 and 4 injuries, medial hematoma, hematoma > 3.5 cm in thickness and the presence of a vascular contrast blush are associated with increased risk of bleeding and need for intervention. The presence of such findings should alert the urologist to the potential need for angiography and selective embolization of segmental vascular injuries. While urinary extravasation and devitalized fragments increase the risk of urinoma formation, they are not associated with higher rates of bleeding. Neither location of laceration or mechanism of injury predict complications independent of grade.

Dugi DD III, Morey AF, Gupta A, et al: American Association for the Surgery of Trauma grade 4 renal injury substratification into grades 4a (low risk) and 4b (high risk). J UROL 2010;183:592-597.

Questions::

A 73-year-old woman with a serum creatinine of 1.9 mg/dl undergoes right partial nephrectomy for a 4.5 cm hilar renal mass. Frozen section of the resected mass reveals chromophobe RCC with tumor less than 0.1 mm from the margin of resection in the area of renal sinus. The next step is:

no further therapy.

cryotherapy of resection bed.

radiofrequency ablation (RFA) of resection bed.

wide resection of renal sinus tissue.

completion radical nephrectomy.

A

The patient exhibits an absolute indication of nephron sparing surgery with a serum creatinine of 1.9 mg/dl which translates into a estimated GFR of 26 ml/min. This patient is in need of retaining as much functional renal parenchyma as possible. This coupled with the fact that she has exhibited an indolent chromophobe subtype of renal cancer is a strong indication to not perform further cancer eradicating procedures. In addition, even in the presence of a positive focal margin there is a very low risk of renal cancer relapse as demonstrated by multiple retrospective data analysis of this scenario. Energy-based therapies in the renal hilar bed would be associated with a high rate of renal unit loss.

Sundaram V, Figenshau RS, Roytman TM: Positive margin during partial nephrectomy: Does cancer remain in the renal remnant? UROL 2011;77:1400-1403.

Bensalah K, Pantuck AJ, Rioux-Leclercq N: Positive surgical margin appears to have negligible impact on survival of renal cell carcinomas treated by nephron-sparing surgery. EUR UROL 2010;57:466-471.

Yossepowitch O, Thompson RH, Leibovich BC: Positive surgical margins at partial nephrectomy: Predictors and oncological outcomes. J UROL 2008;179:2158-2163.

Questions::

A healthy, ten-year-old girl has several urinalyses that show 2%2B proteinuria. The next step is:

ASO titer and complement levels.

serum BUN and creatinine levels.

24-hour urine for protein and creatinine.

spot urine for protein and creatinine.

first morning urine for protein and creatinine.

E

All children with > 1%2B proteinuria on multiple occasions should be evaluated, starting with a urinalysis and first morning spot protein and creatinine ratio. The child must void before retiring and remain supine until the first morning urine sample is obtained. If the ratio is < 0.2, a diagnosis of orthostatic proteinuria is made and no further studies are needed. If other abnormalities are noted on the urinalysis and/or the first morning protein and creatinine ratio is > 0.2, a complete history and physical, including blood pressure, is suggested. Laboratory evaluations, including serum albumin, creatinine, cholesterol, electrolytes, and a 24-hour urine for protein and creatinine and creatinine clearance are obtained. A renal sonogram should be performed. Complement levels (C3, C4) antinuclear antigen (ANA), and serology for hepatitis B and C are indicated. HIV testing should be considered.

Roy S III, Noe HN: Renal disease in childhood, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed. 8. Philadelphia, WB Saunders Co, 2002, vol 2, chap 53, pp 1833-1845.

Hogg RJ, Portman RJ, Milliner D, et al: Evaluation and management of proteinuria and nephrotic syndrome in children: Recommendations from a Pediatric Nephrology Panel established at the National Kidney Foundation Conference on proteinuria, albuminuria, risk, assessment, detection, and elimination (PARADE). PED 2000;105:1242-1249.

Questions::

In a man with azoospermia and elevated FSH, the best predictor of sperm retrieval from the testicle is:

serum FSH level.

testosterone level.

Y chromosome deletion subtype.

seminal volume.

presence of the vas deferens.

C

In men with azoospermia, 7%25 will be associated with Y chromosome microdeletions. Classically, these patients will be found to have azoospermia or severe oligospermia with an elevation in FSH. The microdeletions occur in the long arm of the Y chromosome and are designated as AZFa (proximal), AZFb middle, and AZFc distal. The most common deletion is AZFc. About 75%25 of men with AZFc deletions have sperm on testicular biopsy. Sperm retrieval from men with complete AZFa or AZFb deletions have not been successful. The success of testicular sperm retrieval has not been correlated with FSH or testosterone level. Seminal volume does not reflect spermatogenic potential and has no relationship to the success of sperm retrieval. The absence of the vas deferens may be associated with obstructive azoospermia but these patients should have a normal FSH whereas this patient has an elevated FSH indicating non-obstructive azoospermia.

Hopps CV, Mielnik A, Goldstein M, et al: Detection of sperm in men with Y chromosome microdeletions of the AZFa, AZFb and AZFc regions. HUM REPROD 2003;18:1660-1665.

Questions::

A 76-year-old man has back pain. Seven years ago, he had a bilateral orchiectomy for T3NXM0 prostate cancer. MRI scan of the spine demonstrates a nonpathologic vertebral compression fracture. PSA is undetectable. The next step is:

observation.

bone scan.

DEXA scan (bone densitometry).

antiandrogen therapy.

local radiotherapy.

C

This man, by virtue of his age and androgen deprivation therapy, is at increased risk for osteoporosis. The consequence of osteoporosis is an increase in bone fragility and a susceptibility to fracture. Androgen deprivation therapy (ADT) increases the risk of osteoporosis and is related to the duration of therapy. Compared to age-matched controls, men on ADT have 6.5%25 to 17.3%25 higher bone loss. Furthermore, the risk of non-pathologic fracture with ADT is 4%25 at five years and 20%25 at ten years. DEXA scan is the gold standard for diagnosis of osteoporosis, and is reported as compared to young adults (T-score) and age-matched (Z-score) controls. The treatment initially includes increasing physical activity on weight bearing joints and the addition of both Vitamin D and calcium. Since this patient has no clinical evidence of disease progression, there is no indication for additional treatment. MRI scan reveals only a nonpathologic fracture and PSA is undetectable; this combination obviates the need for a bone

scan.

Oefelein MG, Ricchuiti V, Conrad W, et al: Skeletal fracture associated with androgen suppression induced osteoporosis: the clinical incidence and risk factors for patients with prostate cancer. J UROL 2001;166:1724-1728.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, pp 3089-3090.

Questions::

A 38-week-gestation newborn with a PUV has a serum creatinine of 1.1 mg/dl on day two of life. This child's serum creatinine value:

will not change with a rapid rise in GFR.

is a predictor of future poor renal function.

will decrease with completion of nephrogenesis.

is not reflective of the degree of renal function impairment.

will result in increased active sodium absorption from the descending limb of the loop of Henle.

D

The creatinine in a newborn is reflective of maternal renal function and is not necessarily representative of the degree of renal impairment. In usual circumstances, serum creatinine will reflect the child's renal function by day 7-10. Long term renal function in children with PUV is best predicted by the nadir creatinine at one year of age. If the nadir creatinine is less than 0.8 mg/dl at one year of life, this is a good prognostic sign for retained renal function that will be able to be maintained into adulthood. By 34 weeks gestational age, nephrogenesis is complete and will not affect the level of the creatinine. Sodium reabsorption issues cannot be predicted until the degree of true renal functional impairment is better defined.

Chevalier RL, Roth JA: Renal function in the fetus, neonate and child, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 107, p 3153.

Casale AJ: Posterior urethral valves and other urethral anomalies, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 122, p 3599.

Haycock G: Perinatal nephrourology, in Gearhart JP, Rink RC, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, chap 2, pp 14-26.

Questions::

Ureteral peristalsis originates from:

preganglionic sympathetic input from T8 through L1.

postganglionic fibers arising from the celiac and aorticorenal plexuses.

parasympathetic input from the S2 through S4 spinal segments.

parasympathetic input from the vagus nerve.

intrinsic smooth muscle pacemaker sites in the minor calyces.

E

Ureteral peristalsis does not require autonomic input. It originates and is propagated from the intrinsic smooth muscle pacemaker sites in the minor calyces of the collecting system. The kidneys do receive preganglionic sympathetic input from T8 to L1 and postganglionic fibers from the celiac and aorticorenal ganglia, as well as parasympathetic input from the vagus nerves, however the role of ureteral autonomic input is unclear. This explains why denervated or transplanted kidneys maintain ureteral peristalsis.

Cybulski PA, Joo H, D'A, Honey J: Ureteroscopy: Anesthetic considerations. UROL CLIN N AM 2004;31:43-47.

Questions::

Ductal carcinoma of the prostate:

is best managed with chemotherapy.

is associated with high grade disease and recurrence.

confers no additional risk.

should be graded as Gleason grade 5.

commonly arises from the transition zone.

B

Prostatic ductal carcinoma is an adenocarcinoma that arises in prostatic ducts. It should be graded as a Gleason 4%2B4 since it shares a cribriform pattern and is associated with high grade disease and recurrence. It should be treated similarly to other high grade adenocarcinomas with combination hormonal therapy/ radiation therapy or radical prostatectomy or cryotherapy or primary hormonal therapy depending on patient age, fitness and preference. Like other carcinomas, ductal carcinoma arises more commonly in the peripheral than the transitional

zone.

Epstein JI: Pathology of prostatic neoplasia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 91, p 2881.

Questions::

A five-year-old boy has precocious puberty. Scrotal ultrasound reveals a mass in the upper pole of the left testis. FSH and LH are normal prepubertal levels. Testosterone and urinary 17-ketosteroid levels are significantly elevated. The urinary pregnanetriol levels are normal. The next step is:

glucocorticoid therapy.

biopsy of the mass.

enucleation of the mass.

simple orchiectomy.

radical orchiectomy.

C

This boy has the classic triad of Leydig cell tumors: precocious puberty, testis mass, and elevated 17-ketosteroid levels. Pituitary lesions may also cause precocious puberty except LH and FSH will be elevated in a prepubertal male. These tumors must be differentiated from hyperplastic nodules of CAH which occur when steroid replacement is inadequate. Although both entities have elevated urinary 17-ketosteroids, only CAH due to the 21-hydroxylase deficiency will cause an elevation in urinary pregnanetriol levels. Glucocorticoid replacement will cause regression of the hyperplastic nodules of CAH. Simple and radical orchiectomy is often performed but not preferred. These tumors are generally benign and preservation of testicular tissue with testis sparing surgery is recommended.

Ritchey ML, Shamberger RC: Pediatric urologic oncology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 130, p 3904.

Questions::

Compared to high-level disinfection (Cidex^{TM} -glutaraldehyde), sterilization of a flexible cystoscope offers greater protection against contamination by:

bacteria.

bacterial spores.

Mycobacterium tuberculosis.

virus.

fungi.

B

Sterilization, whether by steam under pressure, ozone, ethylene oxide gas or other methods involves the complete destruction of all microbial life, including bacterial spores. Disinfection uses thermal or chemical destruction of pathogenic and other types of microorganisms, and is less lethal than sterilization. High-level disinfection (HLD) cannot kill large numbers of bacterial spores unless they are exposed for an extended time period. Intermediate-level disinfection inactivates M. tuberculosis, vegetative bacteria, most viruses, and most fungi, whereas low-level disinfection cannot be relied upon to kill resistant microorganisms such as tubercle bacilli or bacterial spores.

Clemens JQ, Dowling R, Foley F, et al: JOINT AUA/SUNA WHITE PAPER ON REPROCESSING OF FLEXIBLE CYSTOSCOPES. American Urological Association Education and Research, Inc and Society of Urologic Nurses and Associates, 2009. <u>http://www.auanet.org/content/media/cystoscopywhitepaper.pdf</u>

Questions::

A 55-year-old woman with metastatic RCC has received five months of therapy with sunitinib. She undergoes uneventful right laparoscopic radical nephrectomy for a 5 cm upper pole renal mass. On post-op day one, she is obtunded, febrile, and complains of nausea and diffuse abdominal pain. BP is 80/50 mm Hg, HR 78 bpm, and urine output is 30 ml over four hours. Laboratory studies show a stable hemoglobin of 13.5 g/dl, and normal WBC. Chemistry studies are pending. The next step is normal saline fluid bolus and:

I.V. dexamethasone.

I.V. desmopressin.

CT scan of abdomen and pelvis.

angiography.

surgical exploration.

A

The patient described above has the classic symptoms and signs of acute adrenal insufficiency. The most common symptoms and signs of acute adrenal insufficiency occurring in the setting of clinical deterioration are fever, nausea/vomiting, abdominal or flank pain, hypotension, abdominal distention, lethargy/obtundation, hyponatremia, and hypokalemia. The urologist should have a high index of suspicion for acute adrenal insufficiency following radical nephrectomy and the degree should be heightened in a patient receiving sunitinib as it may contribute to the condition. Physicians are advised to monitor for adrenal insufficiency in patients treated with sunitinib who experience stress such as surgery. As this was an upper-pole mass, the ipsilateral adrenal may have been removed or devascularized as well. Emergency treatment of adrenal crisis is normal saline fluid resuscitation, and dexamethasone sodium phosphate injection (Decadron, 4 mg I.V.). Stat serum electrolytes, glucose, cortisol, and plasma ACTH are obtained. A short ACTH stim test to confirm the diagnosis of adrenal insufficiency is then performed. Supportive measures are provided as needed. Mineralocorticoids are unnecessary and ACTH is not useful. CT scan would be indicated if the patient did not respond to fluid and steroids and adrenal insufficiency is ruled out. Angiography and surgical exploration are also premature given the clinical scenario suggestive of adrenal crisis. I.V. desmopressin would not be first line treatment in this patient with adrenal crisis, but could be indicated if hypotension was refractory to fluid resuscitation and steroids.

Motzer RJ Rini BI, Bukowski RM, et al: Sunitinib in patients with metastatic renal cell carcinoma. JAMA 2006;295:2516.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, pp 1844-1845.

Questions::

A patient with an ileal conduit urinary diversion is undergoing renal function tests. The parameter that can be most accurately measured is:

creatinine clearance.

urinary concentrating ability.

fractional excretion of sodium.

acid loading.

proteinuria.

C

Measuring renal function in patients with intestinal diversion may be difficult. Most parameters

of renal function will be affected by the intestinal absorption of various substances in the urine, including creatinine and urea, as well as secretion of alkalinizing substances and alteration in the osmotic content. Sodium handling in ileal segments is not markedly altered as ammonium substitutes for sodium in the Na/H antiporter in the bowel lumen.

McDougal WS: Use of intestinal segments and urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, vol 4, chap 106, pp 3778-3779.

Questions::

A 62-year-old man with Klinefelter Syndrome underwent a mastectomy for breast cancer three months ago. He complains of decreased energy and decreased libido. A total testosterone is 210 ng/dl and LH is 15 IU/l. The next step is therapy with:

oral phosphodiesterase inhibitors.

low dose transdermal estrogen.

aromatase inhibitors.

testosterone.

beta-hCG.

C

Men with Klinefelter Syndrome are at increased risk for the development of breast cancer. Approximately 80%25 of cases are estrogen receptor positive, therefore any treatment that increases estrogen levels is contraindicated unless the patient is cured of breast cancer. This patient has symptomatic hypogonadism which would benefit from an increase in serum testosterone but he was recently treated for breast cancer. In men a portion of testosterone is converted to estradiol, primarily in adipose tissue. Aromatase inhibition will decrease conversion of testosterone to estrogen thereby raising testosterone levels while at the same time decreasing estrogen levels. This is safe in men with breast cancer. Phosphodiesterase inhibitors are indicated for erectile dysfunction which this patient does not complain of. Estrogen therapy has no role in treating these symptoms in men and risks stimulation of breast cancer cell growth. HCG will increase testicular production of testosterone. The increased peripheral testosterone levels from either HCG or testosterone therapy will result in increased estrogen levels due to the peripheral conversion to estrogen. Therefore these are inappropriate therapies in men with breast cancer. In Kleinfelters, patients without breast cancer, standard treatment of hypogonadism with testosterone replacement is safe.

Morales A, Morley J, Heaton JPW: Androgen deficiency in the aging male, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1,

chap 27, p 859.

Dimitrov NV, Colucci P, Nagpa L: Some aspects of the endocrine profile and management of hormone-dependent male breast cancer. THE ONCOLOGIST 2007;12:798-807.

Cutuli B, Le-Nir CC, Serin D, et al: Male breast cancer. Evolution of treatment and prognostic factors. Analysis of 489 cases. CRITICAL REVIEWS IN ONCOLOGY/HEMATOLOGY 2010;73:246-254.

Questions::

A 62-year-old man has a radical prostatectomy for prostate cancer. Histology reveals a Gleason 9, pT3aN1Mx cancer with negative surgical margins. His post-prostatectomy PSA is < 0.1 ng/ml. To minimize his risk of relapse, the next step is:

adjuvant docetaxel.

external beam XRT.

LH-RH agonist therapy for six months.

lifelong LH-RH agonist therapy.

LH-RH agonist therapy for six months and external beam XRT.

D

The treatment of men with isolated lymph node metastasis at the time of prostate cancer surgery has been controversial. The use of adjuvant XRT for adverse pathologic characteristics at the time of prostatectomy has been recently evaluated in two large randomized clinical trials. However, patients with lymph node metastasis, such as patients here, were not included in this trial, and it is generally felt that such individuals are at risk of systemic rather than local recurrence. ECOG 3807 evaluated the use of immediate hormonal ablation versus observation in men with isolated lymph node metastases noted on final pathology after radical prostatectomy. The patients treated with immediate therapy had improved overall and cancer-specific survival relative to men undergoing initial observation. No trial has been performed showing an advantage of any chemotherapy treatment in the adjuvant setting. The advantage of short-term androgen deprivation therapy in this setting has not been established.

Nelson JB: Hormone therapy for prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 104, pp 3095-3098.

Meng MV, Carroll PR: Treatment of locally advanced prostate cancer, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 102, pp 3056-3057.

Catalona WJ, Han M: Definitive therapy for localized prostate cancer - An overview, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 3, chap 95, p 2938.

Questions::

A five-year-old girl has a history of VUR that has resolved spontaneously. Five months after stopping prophylactic antibiotics, she has dysuria, frequency, urgency, and urge incontinence. She is afebrile and a urine culture is positive for > 10⁵ E coli. The next step is treatment of UTI and:

voiding diary and timed voiding.

restart prophylactic antibiotics.

VCUG.

DMSA renal scan.

urodynamics.

A

This child has the symptoms of dysfunctional voiding and cystitis. It is not uncommon for children with dysfunctional voiding habits to develop UTIs, but unless they have VUR, they are unlikely to have pyelonephritis, which is usually associated with a fever. In this setting, it is unnecessary to perform another VCUG or renal scan because the infection was not febrile in nature. Urodynamics are likely to be normal, and the emphasis should be on bladder retraining, to avoid any further episodes. While prophylactic antibiotics may be needed to keep these children infection free while they retrain their bladders, it is preferable to keep them off prophylactic antibiotics if possible. Constipation is often present and should be concurrently treated.

Shortliffe LMD: Infection and inflammation of the pediatric genitourinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 112, pp 3261-3262.

Yeung CK, Sihoe JD, Bauer SB: Voiding dysfunction in children: Non-neurogenic and neurogenic, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 123, pp 3618-3620.

Questions::

A 33-year-old woman has dysuria and fever. Urinalysis shows specific gravity of 1.025, leukocyte esterase positive and nitrite negative. There are 10 RBC's and 30 WBC's per hpf on microscopy. Urine culture will likely grow:

Escherichia coli.

Pseudomonas aeruginosa.

Serratia marcescens.

Klebsiella oxytoca.

Proteus mirabilis.

B

Bacteria may convert urinary nitrates into nitrites and this may be used as evidence of UTI. Gram negative bacteria commonly do this, while gram positive species generally do not. One very important exception is Pseudomonas, which does not contain the enzymatic machinery to make this conversion. Thus, a negative nitrite by urinary dipstick in this patient with symptoms and other UA finding suggesting UTI should likely be treated presumptively pending culture and Pseudomonas is one of the very important, aggressive pathogens that must be considered in this circumstance.

Gerber GS, Brendler CB: Evaluation of the urologic patient: History, physical examination, and urinalysis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 3, p 104.

Questions::

A patient with a history of low-grade Ta superficial urothelial carcinoma of the bladder has three new bladder lesions 14 months after last resection. Histology reveals that two of the tumors are Ta while the third is T1. No muscularis propria is seen in the specimens. The next step is:

surveillance cystoscopy every three months.

intravesical mitomycin C therapy.

intravesical BCG therapy.

intravesical BCG plus interferon therapy.

repeat transurethral resection.

E

This patient has not been adequately staged which makes the choice of an appropriate therapy difficult. According to the AUA Guidelines on superficial bladder cancer, in the absence of muscularis propria, data suggest that 20 to 40%25 of patients will have residual tumor and/or unrecognized muscle invasive disease. Therefore, repeat resection is considered a standard in

this setting. All other therapeutic options would be inappropriate at this point because the patient has not been completely staged.

Hall MG, Chang SS, Dalbagni G, et al: Guideline for the management of nonmuscle invasive bladder cancer: (Stages Ta,T1, and Tis): 2007 update. MANAGEMENT OF NONMUSCLE INVASIVE BLADDER CANCER GUIDELINE. American Urological Association Education and Research, Inc, 2007. <u>http://www.auanet.org/content/guidelines-and-quality-care/clinical-guidelines.cfm?sub=bc</u>

Questions::

A 14-year-old girl has primary amenorrhea. She is in the 25th percentile for height and has a webbed neck. Her karyotype is 45 XO. The most likely genitourinary abnormality is:

renal agenesis.

horseshoe kidney.

VUR.

UPJ obstruction.

vaginal agenesis.

B

This patient has Turner Syndrome. These girls can be recognized by their typical physical findings including short stature, webbed neck, and shield chest. Girls with the 45 XO karyotype usually exhibit all the stigmata of the syndrome. Patients with the 45 XO/46 XY karyotype are at increased risk for dysgerminoma and gonadoblastoma and require gonadectomy. Horseshoe kidney occurs with increased prevalence in patients with Turner syndrome and a renal ultrasound is warranted. VUR, renal agenesis and vaginal agenesis are not associated with Turner syndrome. UPJ obstruction may occur in association with horseshoe kidney, but is not seen with increased frequency in Turner syndrome.

Forest MG: Ambiguous genitalia/intersex: Endocrine aspects, in Gearhart JP, Rink R, Mouriquand PDE (eds): PEDIATRIC UROLOGY. Philadelphia, WB Saunders Co, 2001, pp 623-658.

Diamond DA: Sexual differentiation: Normal and abnormal, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 128, p 3810.

Questions::

A 45-year-old woman with hypocitraturia and chronic diarrhea is prescribed potassium citrate tablets three times daily. She notices whole tablets in her bowel movements. The next step is:

continue therapy, as the medication is still absorbed.

increase the medication dosage.

switch to liquid preparation of potassium citrate.

increase the medication frequency.

switch to baking soda.

C

The goal of potassium citrate therapy is to correct the acidosis associated with chronic diarrheal states. Although in many instances potassium citrate tablets appear in the stool. Although the medication is being absorbed, switching to a liquid preparation is recommended in these patients. The slow release approach is mitigated in these cases. Baking soda and the dosing measures would not achieve the best outcome.

Pietrow PK, Preminger GM: Evaluation and medical management of urinary lithiasis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 43, pp 1422-1423.

Questions::

A 55-year-old man seeks consultation regarding prostate cancer screening. According to the U.S. Prostate, Lung, Colon, and Ovarian (PLCO) trial, prostate cancer screening increases:

prostate cancer detection.

detection of Gleason's score 8-10 tumors.

detection of high stage (advanced) tumors.

prostate cancer survival.

quality of life in men with elevated PSA.

A

The Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial randomly assigned

76,693 men to receive either annual screening (38,343 subjects) or usual care as the control (38,350 subjects). Men in the screening group were offered annual PSA testing for six years and DRE for four years. After seven years of follow-up, the incidence of prostate cancer was higher in the screened population; the number of prostate cancers per 10,000 person-years was 116 (2820 cancers) in the screening group and 95 (2322 cancers) in the control group. Prostate cancer survival was similar between study groups; the incidence of death per 10,000 person-years was 2.0 (50 deaths) in the screening group and 1.7 (44 deaths) in the control group. The numbers of subjects with advanced (stage III or IV) tumors were similar in the two groups, with 122 in the screening group and 135 in the control group, though the number of subjects with a Gleason score of 8 to 10 was higher in the control group (341 subjects) than in the screening group (289 subjects). Quality of life was not assessed. Thus, in this US trial, screening did improve detection rate; however, at a median follow-up of seven years, there was no difference in survival between the two groups.

Andriole GL, Grubb III RL, Buys SS, et al: Mortality results from a Randomized Prostate-Cancer Screening Trial. NEJM 2009;360:1310-1309.

Questions::

A nine-year-old boy has intermittent gross, painless hematuria. Urinalysis is normal except for numerous red cells without casts. Urine culture and ultrasound are negative. A percutaneous renal biopsy shows segmental glomerulonephritis with immunoglobulin deposition in mesangial areas. The diagnosis is:

Alport's syndrome.

Henoch-Schonlein purpura.

membranous glomerulonephritis.

IgA nephropathy.

hemolytic uremic syndrome.

D

One of the most frequent causes of intermittent gross hematuria in children is Berger's disease or IgA nephropathy. While the disease may be more benign in children, occasional cases will progress to renal failure, making its recognition important. These patients should be followed with serum creatinine and 24-hour urine for creatinine and protein. If these indicate mild and stable disease, biopsy is not required. Hemolytic uremic syndrome is the triad of hemolytic microangiopathic anemia in association with thrombocytopenia and renal insufficiency. Henoch-Schonlein purpura (HSP) can present with acute glomerulonephritis and can evolve into IgA nephropathy. HSP is a systemic vasculitis which commonly affects the skin, GI tract, joints and can affect the kidney. Membranous glomerulonephritis (MGN) is the most common cause of

nephritis in adults but seen less frequently in children. The pathologic hallmark of MGN is the presence of glomerular subepithelial immune deposits on electron microscopic examination. Alport's Syndrome is an inherited disorder of glomerular basement membrane due to type IV collagen abnormality and is associated with a hearing loss. The biopsy findings will show abnormality of the glomerular vasculature.

Roy S III, Noe HN: Renal disease in childhood, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 8. Philadelphia, WB Saunders Co, 2002, chap 53, pp 1833-1845.

Noe HN, Jones DP: Renal disease in childhood, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 111, p 3226.

Questions::

A 32-year-old woman with severe pyelonephritis is receiving ampicillin combined with a single daily dose of tobramycin, 7 mg/kg. After 36 hours, she remains febrile and has persistent flank pain. Following the second dose, a trough serum tobramycin level is 12 mcg/ml (5-10 mcg/ml). The next step is:

continue current tobramycin regimen.

continue tobramycin and start n-acetyl cysteine.

decrease tobramycin dose.

decrease tobramycin frequency.

discontinue tobramycin and start aztreonam.

D

When combined with TMP-SMX or ampicillin, aminoglycosides are the first drugs of choice for febrile UTIs. Their nephrotoxicity and ototoxicity are well-recognized; hence, careful monitoring of patients for renal and auditory impairment associated with infection is indicated. Once-daily aminoglycoside regimens have been instituted to maximize bacterial killing by optimizing the peak concentration to minimal inhibitory concentration ratio and reduce potential for toxicity. Administering an aminoglycoside as a single daily dose can take advantage not only of its concentration-dependent killing ability but also of two other important characteristics: time-dependent toxicity and a more prolonged post-antimicrobial effect. The regimen consists of a fixed 7 mg/kg dose of gentamicin or 5-7 mg/kg tobramycin. Subsequent interval adjustments are made by using a single concentration in serum and a nomogram designed for monitoring of once-daily therapy. Antimicrobial doses are given at the interval determined by the drug concentration of a sample obtained after the start of the initial infusion. This regimen is clinically effective, reduces the incidence of nephrotoxicity, and provides a cost-effective method for administering aminoglycosides by reducing ancillary service times and serum aminoglycoside

determinations. In this case the serum level of tobramycin is high and requires adjustment. Changing to q 36 hours is indicated. Decreasing the dose may lead to the same reduction in levels but with a reduction in effectiveness. Although the patient continues to have symptoms, this is common during the initial course of pyelonephritis and is not an indication at 48 hours to change antibiotic regimen.

Schaeffer AJ, Schaeffer EM: Infections of the urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 8, p 223.

Questions::

A 30-year-old man has persistent hypertension and paroxysmal headaches. Plasma catecholamine levels are 1100 ng/l. Three hours after a single oral dose of clonidine, 0.3 mg, catecholamine levels are 400 ng/l. The most likely diagnosis is:

renal artery stenosis.

pheochromocytoma.

essential hypertension.

adrenal hyperplasia.

idiopathic hyperaldosteronism.

C

Rarely, patients with suspected pheochromocytoma present with normal or mildly elevated plasma catecholamines. When signs and symptoms of pheochromocytoma are present and plasma catecholamines are mildly elevated, it is critical that the cause of hypertension is determined. The best way to distinguish between essential hypertension and pheochromocytoma in this situation is an oral clonidine test. Patients with essential hypertension will experience a significant drop in plasma catecholamines, while those with pheochromocytoma will not. The clonidine test is not useful in assessing for renal artery stenosis, adrenal hyperplasia or idiopathic hyperaldosteronism.

Vaughan ED Jr, Blumenfeld JD: Pathophysiology, evaluation, and medical management of adrenal disorders, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 53, p 1821.

Questions::

A healthy five-year-old boy is evaluated for bloody urethral discharge. VCUG demonstrates a diverticulum of the bulbous urethra. The most likely explanation for the radiographic finding is:

utricle.

straddle injury.

meatal stenosis.

urethral duplication.

Cowper's gland duct cyst.

E

A diverticulum of the bulbous urethra in a young male is most commonly related to dilation of a Cowper's gland duct. The ducts of Cowper's gland open into the urethra in the bulb and travel to the glands located in the urogenital membrane adjacent to the membranous urethra. These cysts have been found in 2.3%25 of autopsied males; however, they are rarely diagnosed clinically. Straddle injury usually is associated with stricture formation. Urethral duplication, although a possibility here, is much less common and often associated with infection. A utricle would enter the prostatic urethra.

Sharp DS, Angermeier KW: Surgery of penile and urethral carcinoma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 32, p 1030.

Questions::

A 25-year-old man is struck by an automobile. He has a left superior and inferior pubic ramus fracture as well as a fracture of the sacroiliac joint. He has a palpable bladder. No blood is noted at the meatus and the prostate is in normal position on DRE. The next step is:

CT urogram.

retrograde urethrogram.

cystogram.

abdominal ultrasound.

suprapubic tube.

B

The most likely genitourinary injury in this patient is a prostatomembranous urethral disruption, as suggested by the type of pelvic fracture. Fractures of the pubic rami, in particular the medial

inferior ramus, and pubic diastasis are independent predictors of urethral injuries. In most patients, in the absence of blood at the urethral meatus, catheterization is appropriate as the first step. However, in a high risk patient with a palpable bladder and inferior ramus fracture, a urethrogram is the easiest, most specific, and most rapid way to assess urethral injury. Upper tract imaging is not indicated in patients with pelvic fracture. Cystography may be indicated, but not before the urethra has been determined either by retrograde urethrogram or catheterization, to be intact. CT urogram is not a sensitive or specific test for urethral injury. Abdominal ultrasound may demonstrate intraperitoneal fluid but is unlikely to detect injuries to the urethra. Suprapubic cystostomy is not indicated prior to evaluation of the urethra. A gentle attempt at urethral catheterization may be appropriate prior to imaging in the unstable patient.

Basta AM, Blackmore CC, Wessells H: Predicting urethral injury from pelvic fracture patterns in male patients with blunt trauma. J UROL 2007;177:571-575.

Questions::

In a 65-year-old man with RCC, the panel of molecular markers that would be most predictive of good prognosis is:

high carbonic anhydrase IX, absent vimentin, absent p 53 expression.

low carbonic anhydrase IX, positive vimentin, absent p53 expression.

high carbonic anhydrase IX, positive vimentin, positive p53 expression.

low carbonic anhydrase IX, absent vimentin, positive p53 expression.

high carbonic anhydrase IX, positive vimentin, positive p53 expression.

A

In multivariate analysis of a microarray of multiple RCC, certain molecular markers were independently predictive of survival in patients. Those that were predictive of longer survival included high carbonic anhydrase IX (CAIX), absent vimentin and absent p53 expression. CAIX is a von Hippel-Lindau mediated enzyme. High expression of CAIX predicts favorable prognosis. These factors were predictive independent of clinical variables.

Tununguntla HSGR, Jorda M: Diagnostic and prognostic molecular markers in renal cell carcinoma. J UROL 179:2008:2096-2102.

Questions::

A three-year-old child with a duplicated collecting system has VUR to the upper renal segment upon voiding. The most appropriate statement is:

this type of anomaly is commonly bilateral.

the ureter to the upper segment is ectopic.

the ureter to the lower segment is ectopic.

the ureter to the lower segment is obstructed.

reflux to the upper system occurs frequently with complete ureteral duplication.

B

With complete ureteral duplication, the upper pole ureter is more likely to have an ectopic insertion. VUR is more common into the lower pole segment. Reflux into the upper pole moiety alone occurs in children when the orifice is ectopic in the bladder neck or urethra. The ureter lacks trigonal support and has an inadequate submucosa tunnel. This situation occurs in less than 10%25 of cases of complete ureteral duplication. Ureteral duplication, incomplete or complete, occurs in 0.8%25 of the population. As many as 40%25 of cases are bilateral, but most of these are insignificant partial ureteral duplications. Bilateral ectopic insertion of the upper pole ureter with VUR into this moiety alone is very rare. The lower pole ureteral segment would not be ectopic as that would not follow the Weigert-Meyer rule (lower pole VUR, upper pole obstruction). There is no reason to suspect that the lower pole is obstructed if there is VUR into the upper pole system.

Snyder HM: Anomalies of the ureter, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby-Year Book, 1997, pp 2197-2232.

Schlussel RN, Retik AB: Ectopic ureter, ureterocele, and other anomalies of the ureter, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 4, chap 116, p 3387.

Questions::

A 26-year-old man had blunt abdominal trauma. An abdominal CT scan revealed a deep renal laceration and urinary extravasation. After ten days of expectant management, a repeat CT scan reveals persistent urinary extravasation with a small urinoma. He remains stable and afebrile. The next step is:

continued observation.

insertion of a ureteral stent.

percutaneous perinephric drainage.

percutaneous nephrostomy drainage.

surgical exploration and repair.

B

Patients with blunt injuries of the kidney have been managed successfully with observation alone even when there is evidence of urinary extravasation and preliminary imaging studies. Extravasation resolves in approximately 85%25 of renal injuries without the need for internal or external drainage. However, patients with persistent extravasation should be managed with optimized drainage of urine with an internal ureteral stent. This may require additional decompression of the bladder to allow complete closure of the injury to the collecting system. Percutaneous nephrostomy tube placement may be difficult in a patient without hydronephrosis and percutaneous perinephric drainage is not necessary unless there is evidence of infection or large urinoma formation. Surgical exploration and repair is excessively invasive; ten days after injury such an exploration may increase the likelihood of nephrectomy due to the difficulty of renorrhaphy in the face of significant perinephric reaction to urine leakage.

Matthews LA, Spirnak JP: The non-operative approach to major blunt renal trauma. SEM UROL 1995;13:77-82.

Alsikafi NF, McAninch JW, Elliott SP, Garcia M: Nonoperative management outcomes of isolated urinary extravasation following renal lacerations due to external trauma. J UROL 2006;176:2494-2497.

Questions::

The factor most predictive of finding fibrosis only during post-chemotherapy RPLND for germ cell tumor is:

use of bleomycin chemotherapy regimen.

size of pre-chemotherapy retroperitoneal mass.

normal post-chemotherapy CT scan.

teratoma in primary tumor.

normal preoperative serum tumors markers.

C

Normal serum tumor markers following chemotherapy are associated with a 10-20%25 chance of viable germ cell tumor and 30%25 probability of teratoma. Normal CT scan with no lymph node larger than 8 mm is associated with a greater than 90%25 chance of fibrosis at the time of RPLND. The presence or absence of bleomycin in the chemotherapy regimen is not associated

with probability of response and the prechemotherapy mass size or stage is not a powerful predictor of post chemotherapy histology. Normal pre-chemotherapy tumor markers and the presence of teratoma are not predictive of fibrosis at RPLND.

Sheinfeld J, Bartsch G, Bosl GJ: Surgery of testicular tumors, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 30, p 936.

Questions::

An eight-year-old, 25 kg boy with pyelonephritis has vomiting and diarrhea for three days. Serum electrolytes are: sodium 150 mEq/l, potassium 3.0 mEq/l, chloride 117 mEq/l, bicarbonate 25 mEq/l. The most appropriate I.V. therapy for the first 24 hours is:

0.25 NS with 40 mEq/l of KCl at 100 cc/hr.

D5W with 40 mEq/l of KCl at 200 cc/hr.

NS with 40 mEq/l of KCl at 100 cc/hr.

NS with 40 mEq/l of KCl at 75 cc/hr.

D5W with 10 mEq/l of KCl at 200 cc/hr.

A

The child has significant hypernatremia and hypokalemia. Most cases of hypernatremia are due to loss of water or failure to adequately replace water loss. In this case, water loss is due to diarrhea and vomiting. These extrarenal water losses are associated with a decrease in extracellular fluid volume indicating deficits in total body sodium as well as water. The proportionally greater deficiency of water than of sodium leads to the increase in the serum sodium concentration. Initial fluid replacement in this child should replace the water loss and salt losses with a hypotonic salt solution (0.25NS with 40 mEq/l KCl at 100 cc/hr) at a rate 1.5-2.0x maintenance.

Shoskes DA, McMahon AW: Renal physiology and pathophysiology, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 35, pp 1149-1151.

Questions::

A 37-year-old man sustains a high velocity pelvic gunshot wound with no obvious ureteral injury at exploration. Two days later, during a scheduled second look operation the distal ureter appears contused. There is no extravasation of I.V. indigo carmine. The next step is:

continued observation.

cystoscopy and ureteral stent.

percutaneous nephrostomy.

ureteroneocystostomy.

debridement and ureteroureterostomy.

B

Blast injury represents a complex set of events resulting in direct or indirect soft tissue damage. The initial blast can cause tissue damage, and propelled fragments can cause penetrating injuries. Falling objects or impact from blast displacing the victim's body against a stationary object usually cause blunt injuries but could also cause penetrating injuries. Additionally, victims often suffer burns from the heat discharged by the explosive device or by fire ignited by the blast. Gunshot wounds represent localized tissue damage similar to the initial blast described above. The degree of injury reflects the weapon, bullet, and distance from the projectile to the affected organ. Bullet velocity has the greatest effect on soft tissue damage; whether bullet velocity reflects tissue damage precisely is controversial. However, high-velocity weapons clearly cause extensive soft tissue damage. The greater the bullet velocity, the larger the temporary cavity created, indicating the extent of soft tissue stretch and destruction The progressive changes seen on day one post injury suggest an evolving blast injury. Minor ureteral contusions from penetrating mechanisms can be treated with stent placement. Caution must be exercised, however, as minor-appearing ureteral contusions may stricture later or break down secondary to unappreciated microvascular damage to the ureter. Thus, in this case, stenting is the next step because a more severe injury is not evident. When tissue damage appears more significant the injured portion of the ureter should be débrided and ureteroureterostomy used to repair the injury. Exceptions to this are the pelvic ureter, for which reimplantation is preferred over ureteroureterostomy due to the poor blood supply to the distal ureter. Although percutaneous nephrostomy is useful in establishing proximal diversion of urine, it is probably not yet indicated in this case; furthermore, stenting across the injured segment is strongly recommended to reduce the risk of complete obliteration.

McAninch W, Santucci RA: Renal and ureteral trauma, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 39, p 1274.

Questions::

During open inguinal hernia repair, a 19-year-old man undergoes complete excision of an incidental 2 cm spermatic cord mass. The final pathology shows well-differentiated leiomyosarcoma with negative surgical margins. A metastatic survey is negative. The next step is:

surveillance.

inguinal orchiectomy with high ligation of the cord.

XRT to the inguinal region.

RPLND.

systemic chemotherapy.

B

Paratesticular leiomyosarcoma occurs most commonly during the first two decades of life. On gross inspection, these tumors appear circumscribed, but on microscopic examination they often extend well beyond the margin seen by the naked eye. Despite achieving a negative margin, local recurrence risk is significant. Because of this, the primary paratesticular tumor should be removed by inguinal orchiectomy with high ligation of the cord. Excision of the inguinal scar is also usually performed at time of orchiectomy to reduce local recurrence. Chemotherapy and radiation are reserved for patients with gross or microscopic residual disease after surgical resection. RPLND for stage I paratesticular leiomyosarcoma is not indicated.

Richie JP, Steele GS: Neoplasms of the testis, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 29, p 933.

Questions::

During an abdominal surgery, a solid fibrous cord-like structure is encountered, coursing lateral to the bladder and ascending on the posterior aspect of the anterior abdominal wall toward the umbilicus. This structure represents a remnant of the:

Wolffian duct.

M|uulm|llerian duct.

urogenital sinus.

hypogastric artery.

umbilical vein.

D

The fetal hypogastric arteries carry de-oxygenated blood to the umbilical arteries and placenta.

When the placental circulation ceases at birth, the part of the hypogastric artery distal to the superior vesical artery is converted into a solid fibrous cord which becomes the medial umbilical ligament (obliterated hypogastric artery).

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 1, chap 2, p 38.

Questions::

A 35-year-old man has primary infertility. On physical exam, neither vas deferens is palpable, each testis is 34 ml in volume. Semen analysis reveals a 0.3 ml volume and azoospermia. The man and his wife would like to pursue all options for parenthood. The next step is:

scrotal ultrasound.

Y-chromosome microdeletion analysis and karyotype.

cystic fibrosis mutation analysis on both partners.

diagnostic testicular biopsy with scrotal exploration.

donor sperm intrauterine insemination.

C

The majority of patients with congenital bilateral absence of the vas deferens (CBAVD) are found to have mutations or 5T polymorphism of the CFTR (cystic fibrosis transmembrane regulator protein) gene. Men with CBAVD may have subtle pulmonary disfunction such as recurrent bronchitis and other family members may carry CF mutations, therefore the man should be offered CF testing. If the female partner has a CF mutation, the couple's children have a 50%25 chance of having mutations in both CF genes and developing clinical cystic fibrosis. CF testing of both partners is ideal if the couple is considering sperm retrieval and ICSI. Diagnostic testicular biopsy is not necessary since CBAVD is associated with obstructive azoospermia. Scrotal exploration will not find the vas deferens. CBAVD patients should have normal karyotypes and will not have AZF deletions of the Y-chromosome. Scrotal ultrasound will not add any useful information. While donor insemination is an option, it is not the next step if the couple is considering all options.

Jarow J, Sigman M, Kolettis PN, et al: The evaluation of the azoospermic male. EVALUATION OF THE AZOOSPERMIC MALE BEST PRACTICE STATEMENT. American Urological Association Education and Research, Inc, 2010. <u>http://www.auanet.org/content/media/azoospermicmale2010.pdf</u>

Questions::

A 20 year-old man with stage 1 NSGCT (80%25 yolk sac, 20%25 seminoma) without lymphovascular invasion opts for surveillance but is concerned about radiation doses he will receive with CT scans. A reasonable treatment schedule for his CT surveillance would be:

chest and abdominal/pelvic CT scans at 3, 6, 9, 12, and 24 months.

abdominal/pelvic CT scans at 3, 12, and 24 months.

chest and abdominal CT scans at 3 and 24 months.

abdominal CT scan at 12 months.

chest and abdominal CT scans at 3 and 12 months.

E

A recent randomized, controlled trial evaluating patients with clinical stage 1 NSGCT concludes that "CT scans at 3 and 12 months after orchidectomy should be considered a reasonable option in low risk patients." This schedule was compared with CT scans at 3, 6, 9, 12, and 24 months. This less intensive CT scanning regimen is recommended for low-risk patients such as this patient. This patient does not have any high risk features (significant embryonal cell CA component and/or lymphovascular invasion). An alternative strategy to reduce radiation is to use abdominal MRI scan, although this has not been systematically studied.

Rustin GJ, Mead GM, Stenning SP, et al: Randomized trial of two or five computed tomography scans in the surveillance with stage I NSGCT. J CLIN ONCOL 2007;25:1310-1315.

Questions::

An eight-year-old boy undergoes PCNL. An intraoperative nephrostogram shows contrast in the large bowel. The best management is ureteral stent and:

diverting colostomy.

primary colonic repair.

remove nephrostomy and low residue diet.

retain nephrostomy and perform barium enema.

withdraw nephrostomy into colon.

E

The child has suffered a colonic perforation. Although rare, this complication due to a retrorenal colon is more common in patients with neurogenic bowel. The majority of these injuries can be managed nonoperatively with a double-J stent, tube drainage of the colon, low residue diet and broad-spectrum antibiotics. The tube is left in the colon for seven to ten days. If a contrast study at that time shows no evidence of extravasation or fistula formation, the tube can be removed. Open exploration is reserved for patients with intraperitoneal perforation, peritonitis, or sepsis.

Gupta M, Ost MC, Shah JB, McDougall EM, Smith AD: Percutaneous management of the upper urinary tract, in Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA (eds): CAMPBELL'S UROLOGY, ed 9. Philadelphia, Saunders Elsevier, 2007, vol 2, chap 46, p 1548.

Assimos DG: Complications of stone removal, in Smith AD, Badlani GH, Bagley DH, et al (eds): Smith's Textbook of Endourology. St. Louis, Quality Medical Publishing Inc, 1996, vol 1, chap 21, pp 302-303.

AUA 2013

Dr.raed hmood al-zaidee

1. A 55-year-old man with post-prostatectomy incontinence underwent placement of an artificial urinary sphincter with good results for three years. He now complains of recurrent incontinence. Examination of the device and cystoscopy suggests normal cycling and no cuff erosion. The next step is:

A.deactivate device for a two month trial period.
B.alpha-blocker therapy.
C.antimuscarinics.
D.urodynamics.
E.surgical exploration for repair or replacement.

","D"," is the correct answer.Urethral atrophy results from chronic compression of the corpus spongiosum by the cuff and is the leading cause of urinary incontinence in this setting. However, urodynamic evaluation may reveal involuntary detrusor contractions or decreased bladder compliance. Deactivation will not permit improved sphincter function. Surgical exploration is not indicated if the cause of the incontinence is unrelated to the device (e.g., detrusor overactivity or impaired compliance). Alpha-blockers would not be expected to have any effect on urinary incontinence in this case regardless of the underlying cause. Antimuscarinics would not treat causes of incontinence related to device malfunction. Treatment options for this patient would include downsizing the cuff movement to a more proximal or distal location or the addition of a second cuff placed in tandem.

2. The recommended method to prevent postoperative DVT in an otherwise healthy man undergoing TURP under spinal anesthesia is:

A.subcutaneous low dose unfractionated heparin.
B.low molecular weight heparin.
C.aspirin.
D.early ambulation.
E.obtain preoperative lower extremity duplex studies.

","D","The AUA Best Practices Policy on DVT prophylaxis stated that early ambulation is recommended for the vast majority of men undergoing TURP. Those men who are at increased risk for DVT (such as previous DVTs, malignancy, immobility, paresis, etc.) may benefit from pneumatic compressive stockings, subcutaneous low dose unfractionated heparin, or low molecular weight heparin (LMWH). However, the use of LMWH is contraindicated in a patient who receives spinal or epidural anesthesia as this is a FDA black box warning due to risk of spinal hematoma. Aspirin and other antiplatelet drugs, while highly effective at reducing vascular events associated with atherosclerotic disease, are not recommended for DVT prophylaxis in surgical patients. There is no indication for obtaining preoperative LE-duplex studies in an otherwise healthy male.

3. A 66-year-old woman has a polypoid mass at her urethral meatus. Office biopsy demonstrates a non-invasive high-grade squamous cell carcinoma. Radiologic staging reveals no evidence of regional or distant disease. The next step is:

A.topical 5-FU cream.
B.laser fulguration.
C.circumferential excision including excision of anterior vaginal wall.
D.XRT with ilioinguinal lymphadenectomy.
E.anterior pelvic exenteration with pelvic lymphadenectomy.

","C","In female urethral cancers, treatment recommendations are primarily dependent on tumor location and clinical stage. Local excision may be sufficient for the relatively uncommon small,

superficial, distal urethral tumors, and can result in excellent functional results. For more proximal and advanced urethral tumors, a more aggressive approach is warranted. Small, exophytic, superficial tumors arising from the urethral meatus or anterior urethra (as in this case) may be surgically treated with circumferential excision of the distal urethra including a portion of the anterior vaginal wall. The distal third of the urethra may be excised while still maintaining urinary continence. Tumors in the distal urethra tend to be low stage, and cure rates of 70%25 to 90%25 have been achieved with local excision alone. 5-FU cream has been utilized in the treatment of carcinoma-in situ of the penis, but does not have a defined role in female urethral cancers. Although XRT has been effectively used for female urethral cancers, the addition of prophylactic lymphadenectomy in this choice makes it incorrect. Recommendations for performing groin dissection have been made only for patients who present with positive inguinal or pelvic lymphadenopathy without distant metastasis, or patients who develop adenopathy during surveillance .Anterior pelvic exenteration is employed for patients with proximal urethral cancers often as part of a multimodal approach including chemotherapy and XRT.

4. The nephrotoxic effect of cisplatin is due to:

A.efferent arteriolar constriction.
B.afferent arteriolar constriction.
C.pre-existing plasma volume contraction.
D.a direct toxic effect on renal tubular cells.
E.renal tubular obstruction from drug precipitation.

","D","Cisplatin nephrotoxicity is due to a direct toxic effect of the drug on renal tubular cells. Azotemia and dehydration are predisposing conditions which increase the risk of this complication. Cisplatin is not precipitated in the renal tubules nor does it affect glomerular hemodynamics.

5. A 45-year-old woman with prior pelvic radiation for cervical cancer develops severe hemorrhage from the right ureteral orifice during routine exchange of a chronic indwelling 6 Fr ureteral stent. Over the next six hours, she continues to bleed but remains stable. The next step is:

A.replace stent with 8 Fr stent.
B.right percutaneous nephrostomy.
C.ureteroscopy with fulguration.
D.angiography and placement of endovascular graft.
E.open exploration.

","D","Most cases of ureteroarterial fistulas are reported in patients with a prior history of vascular disease, radiation therapy, or pelvic surgery, especially in the setting of indwelling ureteral stents. In fact, ureteroarterial fistulas are highly associated with indwelling stents. The routine urologic and radiologic evaluation of hematuria will not generally provide evidence of ureterovascular fistula. Even in suspected or proven cases, preoperative radiologic investigations including nonselective arteriography and pyelography are often nondiagnostic .This is especially true in patients with intermittent hematuria in whom there is no active bleeding at the time of the radiographic investigation, presumably because of thrombus over the site of the fistula. Selective or subselective arteriography of the iliac vessels may be more revealing in suspected cases, and provocative maneuvers such as stent removal or mechanical friction of the ureteral lumen by manipulation of the stent may be necessary to demonstrate the fistulous connection in patients without active bleeding undergoing angiography. These adjuvant maneuvers should be performed only with extreme caution in an appropriate setting where immediate angiographic or surgical intervention is possible. In a review, retrograde pyelography was diagnostic in only 6 of 10 patients in whom it was performed, and arteriography diagnosed a ureterovascular fistula in only 4 of 14 cases. Indirect evidence of a ureteroarterial fistula can be found on CT, but findings

are usually nonspecific and suggestive only in retrospect after a confirmed diagnosis by other means. Nevertheless, in a stable patient with a suspected ureterovascular fistula, a full radiographic evaluation may be pursued, not only for diagnostic purposes but also to evaluate potential reconstructive options and in select cases to perform therapeutic angiographic embolization procedures. As these patients may present in extremis with hypotension and severe hemorrhage, surgical intervention must be considered early, especially since radiographic evaluation may be nondiagnostic. In this stable patient, an attempt at angiography and placement of an endovascular graft is warranted. Open exploration may be needed if hematuria persists. Replacement of the ureteral stent or percutaneous nephrostomy will not stop the hemorrhage. Ureteroscopy with fulguration will be unsuccessful with an arterial-ureteral fistula.

6. With a pneumoperitoneum of 15 mmHg the following changes would be expected:

A. HR increase , GFR decrease , MAP increase .
B. HR increase , GFR decrease , MAP decrease .
C. HR increase , GFR increase, MAP decrease .
D. HR decrease, GFR increase, MAP decrease .
E. HR decrease, GFR decrease, MAP increase .

,"A","The pneumoperitoneum used in laparoscopy will have an effect on the cardiovascular, renal and respiratory systems. With pressures = 20 mmHg (most commonly used pressure for laparoscopy is 15 mmHg), heart rate, mean arterial pressures and systemic vascular resistance are all increased. Alterations in venous return and cardiac output are variable and are dependent on the hydration of the patient. In the hypovolemic or euvolemic state both venous return and cardiac output are decreased due to compression of the vena cava, however if the patient is hypervolemic, (fluid overloaded) the vena cave will resist the increase in the intraabdominal pressure and both venous return and cardiac output increased. The GFR is decreased due to compression of the renal vein and renal parenchyma by the elevated intraabdominal pressure.

7. A 22-year-old sexually active woman complains of vulvovaginal itching and flu-like symptoms. On physical exam, she is afebrile and the only finding is a fissure in the left labia majora with no vaginal discharge. Urinalysis is negative. The treatment that can prevent recurrence of her symptoms is:

A. hydrocortisone cream.
B. diphenhydramine cream.
C. ceftriaxone IM.
D. imiquimod cream.
E. oral acyclovir.

","E","This patient has genital herpes (herpes simplex virus, HSV), of which 85-90%25 are caused by HSV-2 and 10-15%25 are caused by HSV-1. Initial genital herpes infection is often associated with constitutional flu-like symptoms. While vesicular eruptions can be found on physical exam, women especially may present with atypical lesions such as abrasions ،fissures or itching. Empiric treatment may be initiated. Diagnosis can be helped by serology tests for antibodies to HSV-2 and HSV-1. Antiviral creams are not helpful for genital herpes. Oral acyclovir has been shown to prevent recurrence of genital herpes and associated symptoms. Hydrocortisone cream is not recommended for the treatment of genital herpes, however, recent studies suggest that a combination of topical acyclovir and hydrocortisone cream may reduce the recurrence of herpes labialis. Ceftriaxone is an appropriate treatment for chancroid but not genital herpes. Topical imiquimod is not recommended for treatment of routine genital herpes but is being used to treat recalcitrant cases of acyclovir-resistant herpes in immunocompromised hosts.

8. Sodium reabsorption in the proximal tubule:

A. results in a hypotonic tubular fluid.
B. occurs against a steep concentration gradient.
C. is accompanied by bicarbonate excretion.
D. occurs by an active transport mechanism.
E. is regulated by aldosterone.

D","About two-thirds of the glomerular ultrafiltrate is reabsorbed in the proximal tubule with little change in the osmolality or sodium concentration of the unreabsorbed fraction. In other words, fluid reabsorption in the proximal tubule is nearly isosmotic and is coupled to the active transport of sodium. Since chloride and bicarbonate are the primary anions in the extracellular fluid, most of the filtered sodium is reabsorbed with these anions. Because of the high water permeability of the proximal tubule, sodium transport occurs against a minimal concentration gradient. Aldosterone regulates sodium-potassium exchange in the collecting duct.

9. A 61-year-old man with a serum creatinine of 1.7 mg/dl has a 5 cm upper pole left renal mass. He undergoes left partial nephrectomy. After complete gross resection of the mass frozen section reveals lymphoma with diffuse infiltration of normal renal parenchyma by lymphoma at the margins. His cold ischemic time was 18 minutes. The next step is:

A. no further operative intervention.
B. re-excision of tumor bed.
C. cryotherapy of margin.
D. biopsy of contralateral kidney.
E. radical nephrectomy.

","A","The unexpected finding of renal lymphoma at the time of renal cortical tumor surgery is rare. Ninety percent of these cases are not primary renal lymphoma but rather systemic lymphoma with renal manifestation. Non-Hodgkin's lymphomas are the most common subtype. Multifocal masses, bilaterality and regional lymphadenopathy are all more common in renal lymphoma than in renal cortical tumors. In this patient the presence of diffuse renal infiltration by lymphoma will make post-operative systemic therapy necessary .In the setting of compromised renal function every attempt should be made to spare the remaining nephron mass in preparation for systemic chemotherapy. Therefore further surgical intervention is not warranted and completion of the operation and subsequent postoperative discussion regarding systemic therapy is the most logical next step

10. A healthy one-month-old girl has lower abdominal distention. An ultrasound demonstrates a cystic mass behind the bladder. Follow up MRI scan is shown. Physical exam reveals normal appearing genitalia with a single opening in the urethral position with no evidence of a vaginal opening. These findings are most consistent with:

A. Mayer-Rokitansky syndrome.
B. androgen insensitivity syndrome.
C. transverse vaginal septum.
D. imperforate hymen.
E. CAH.

","C","The MRI scan shows evidence of a distended upper vagina and presence of a uterus which is most consistent with either a transverse vaginal septum or distal vaginal agenesis. Transverse vaginal septa are believed to arise from a failure in fusion or canalization (or both) of the urogenital sinus and Müllerian ducts. Many of the patients present at puberty with primary

amenorrhea and a distended upper vagina. A complete transverse vaginal septum may be located at various levels in the vagina, but there is a higher frequency in the middle and upper third of the vagina. Transperineal, transrectal, and abdominal ultrasonography and MRI scan may be beneficial in establishing the diagnosis and determining the location and thickness of a transverse vaginal septum. Vaginal atresia occurs when the urogenital sinus fails to contribute to formation of the lower (distal) portion of the vagina. Mayer-Rokitansky syndrome is characterized by either partial or complete absence of the vagina and coexisting uterine abnormalities, with the uterus either partially or completely absent. In Mayer-Rokitansky syndrome, the fallopian tubes and ovaries are present but may be either normal or hypoplastic. Two types exist, type I that involves only the Müllerian structures (vagina and uterus) and type II that will involve concurrent abnormalities of either the cardiac, renal or otologic systems. Androgen insensitivity syndrome is characterized by the absence of a uterus, salpinx, and upper 2/3 of the vagina, these structures regress under the active influence of MIF secreted from the testes. CAH infant will manifest an enlarged clitoris and genital ambiguity, with variable lengths of a urogenital sinus present dependent upon the degree of androgen secretion from the adrenal glands. An imperforate hymen should demonstrate a visible bulging membrane at the vaginal introitus.

11. A 34-year-old man amputates his penis during a psychotic episode. He is brought to the emergency department in stable condition with cold ischemia time of the amputated penis of six hours. Microvascular reconstruction or macroscopic replantation of the penile shaft provides an equivalent outcome for:

A. penile skin preservation.
B. urethral stricture formation.
C. erectile function.
D. penile sensation.
E. infection.

","C","Microvascular reconstruction involves reanastomosis of the dorsal arteries, dorsal vein, and nerves. Macroscopic replantation is the simple anastomosis of the corpora cavernosum and urethra. Erectile function after either microvascular reconstruction or macroscopic replantation of the penile shaft is roughly 50%25. Penile skin loss, urethral stricture formation, and loss of penile sensation are all greater with macroscopic replantation as compared to microvascular reconstruction of the penile shaft. Infection of the penile shaft after either technique has not been studied to date.

12. A 71-year-old healthy, uncircumcised man has a 4 cm penile tumor and undergoes partial penectomy. Pathology reveals high grade squamous cell carcinoma invading the corpora cavernosum with negative surgical margins. After four weeks of antibiotic therapy, staging evaluation reveals bilateral bulky fixed, inguinal adenopathy and bilateral pelvic adenopathy. The next step is:

A. pelvic lymph node biopsy.
B. sentinel inguinal lymph node biopsy.
C. XRT to inguinal nodes.
D. bilateral pelvic and inguinal lymph node dissection.
E. neoadjuvant cisplatin, ifosfamide, and paclitaxel.

","E","This patient has a T2 (invasion into the corpus spongiosum or cavernosum) N3 (palpable fixed inguinal lymph nodes or nodal mas, either bilateral or unilateral) disease. In patients with unresectable primary tumors or bulky regional lymph node metastases, neoadjuvant treatment with a cisplatin-containing regimen is the most effective treatment modality and may allow curative resection. A phase 2 study using four courses of neoadjuvant paclitaxel, ifosfamide and cisplatin chemotherapy for TxN2-3 disease followed by bilateral inguinal lymph node dissections, and unilateral or bilateral pelvic lymph node dissections revealed excellent response with an objective response rate of 55%25 and complete pathologic response rate of 10%25, toxicity was

acceptable with no treatment-related deaths. This treatment is superior to single agent chemotherapy and has less toxicity than the previous multi-agent chemotherapeutic regimen of cisplatinum, bleomycin, and methotrexate. The optimal chemotherapy regimen however has yet to be determined. In this patient with bilateral bulky fixed nodes not responding to antibiotics, a needle biopsy of the lymph nodes could be considered for pathologic diagnosis .However, neither pelvic lymph node biopsy, sentinel inguinal lymph node biopsy, nor bilateral pelvic inguinal and inguinal lymph node dissection would be curative and would predispose the patient to non-healing surgical incision sites. Similarly, XRT to the inguinal nodes would not be curative for this extensive disease.

13. A 40-year-old man with spina bifida undergoes ileovesicostomy and bladder neck closure with omental flap interposition for severe incontinence. Three months later he develops recurrent incontinence from a vesicourethral fistula. The next step is :

A. tube vesicostomy.
B. permanent nephrostomy tubes.
C. repeat bladder neck closure with omental interposition.
D. repeat bladder neck closure with rectus flap interposition.
E. ileal conduit.

","D","Persistent vesicourethral fistula occurs frequently with bladder neck closure where vascularized tissue is not interposed between the bladder neck and urethra. Omentum is the most commonly used tissue for interposition but occasionally is not available or cannot be brought down to the level of the bladder neck closure. When this is not possible, or in high risk cases (radiated patients, persistent vesicourethral fistulae, etc.) a rectus abdominus pedicle flap can be used for interposition. Tube vesicostomy will not help this patient as he will continue to be incontinent and it has been a lengthy interval since his surgery. Permanent nephrostomy tubes are undesirable and the patient may well continue to be incontinent. An ileal conduit can be considered but would be significantly more extensive than repeating the bladder neck closure.

14. Radiation exposure from a single abdominal CT scan is:

A. on average 50 times greater than that from an anterior-posterior abdominal x-ray.
B. is less harmful to the digestive organs compared to the brain.
C. results in less cancer risk in younger patients.
D. increased with automatic exposure-control option.
E. the result of non-ionizing radiation.

","A","There are an estimated 60-70 million CT scans performed in the USA, perhaps with 33%25 being unnecessarily performed. CT scans generate ionizing radiation with resulting DNA damage that could result in the induction of cancer. The cancer risk of CT scans is higher in the pediatric population. Furthermore, the digestive organs are more sensitive to radiation injury than the brain. Newer CT scans have automatic exposure-control option which will decrease the radiation exposure. An abdominal x-ray results in a dose of 0.25 mSv to the stomach whereas a single CT scan of the abdomen can result in a radiation dose 50 times or greater to the stomach.

15. A 30-year-old man is diagnosed with stage 3 NSGCT. He undergoes radical orchiectomy and four cycles of BEP chemotherapy. His tumor markers have normalized. However, he has a 10 cm retroperitoneal mass and three 1 cm pulmonary masses (50%25 size reduction after chemotherapy). After his RPLND, the next step is:

A. observation with serial imaging.
B. PET scan with resection of lung masses if positive.
C. resection of lung masses.
D. resection of lung masses if retroperitoneum has active tumor.
E. resection of lung masses if retroperitoneum has teratoma.

","C","There is about 75% concordance between retroperitoneal pathology and pulmonary mass pathology, however, approximately 25% of cases will have discordant pathology (i.e., retroperitoneal fibrosis and active tumor or teratoma in the lung field). Therefore, post-chemotherapy thoracotomy yields important prognostic information and is curative in patients with resected teratoma and a subset of patents with viable tumor.PET scanning is a valuable decision making tool for retroperitoneal post-chemotherapy seminoma for residual masses greater than or equal to 3 cm. In this patient population, provided the PET scans are performed six weeks after the last chemotherapy cycle (decreased false positives)،PET scans have a negative predictive value of 96% and a positive predictive value of 78% for active seminoma. This helps identify patients who merit additional treatment for post-chemotherapy seminoma retroperitoneal masses. PET scans usefulness, however, for the evaluation of supra-diaphragmatic, residual pulmonary nodules or mediastinal masses has not been extensively studied and recommendations for its use in this clinical situation have yet to be determined.

16. A 53-year-old diabetic man sustains a minor proximal crural perforation during primary implantation of a three-piece inflatable penile prosthesis via a penoscrotal approach. The best management is:

A. abort the procedure.
B. secure exit tubing of the ipsilateral cylinder.
C. extend corporotomy for primary repair.
D. place a malleable implant.
E. direct closure via perineal approach.

","B","A common intraoperative complication with penile prosthesis surgery is crural perforation. If this occurs with insertion of an inflatable device with attached tubing, placing a tunica albuginea closure suture on either side of the exit tubing to keep the cylinder in place has worked sufficiently without requiring a more extensive repair. A more significant perforation injury, including damage to the urethra, would require termination of the procedure. Placement of a malleable prosthesis is not advised as it cannot be secured and will be more likely to erode.

17. A 43-year-old man desires a biological child with his 38-year-old wife. Both testes are 5 cm in longitudinal axis and firm on physical examination. Two semen analyses show azoospermia with volumes of 2.1 and 2.3 ml. FSH is 2.8 IU/l. The next step is:

A. adoption.
B. TRUS.
C. evaluation of the wife.
D. testicular sperm extraction with ICSI.
E. microsurgical scrotal ductal reconstruction.
","C","The likelihood of obstructive azoospermia is 96% with testis longitudinal axis greater than 4.6 cm and FSH less than 7.6 IU/l. However, the most significant predictor of any form of reproductive intervention is maternal age, with female fecundity declining precipitously after age 37. The decision to perform microsurgical scrotal ductal reconstruction or to obtain sperm from the testis for IVF and intracytoplasmic sperm injection rests on evaluation of the female partner, especially after age 37. Transrectal ultrasound is not necessary if semen volumes are normal (> 1.5 ml) as ejaculatory ductal obstruction is unlikely.

18. A 66-year-old man undergoes a radical nephrectomy with adrenalectomy for an 8 cm upper pole RCC within the kidney. There is a focus of non-contiguous, metastatic RCC in the adrenal gland. No lymph nodes were removed. According to the 2010 TNM AJCC classification, pathologic stage is:

A. T1bN0Mx.
B. T1bNxM1.
C. T2aNxM0.
D. T2aNxM1.
E. T4NxM0.

","D","According to the 2010 TNM AJCC staging, renal cancers greater than 7 cm and less than or equal to 10 cm are now categorized as pT2a. Lesions greater than 10 cm are pT2b. Adrenal gland involvement depends on whether there is contiguous involvement (T4) or non-contiguous involvement (M1). The M1 designation is true even if the adrenal gland is on the ipsilateral side as the nephrectomy. When there are no pathologic lymph nodes available, the pathologic staging is designated as NX.

19. The finding most suggestive of renal artery stenosis on duplex ultrasonography is:

A. decreased diastolic flow.
B. turbulent systolic flow.
C. increased peak systolic velocity.
D. renal aortic ratio < 3.5.
E. resistive index < 0.8.

","C","Duplex ultrasound of the renal arteries is a useful noninvasive anatomic study for the diagnosis of renal artery stenosis (RAS). Although an altered flow pattern distal to the stenosis, including decreased diastolic flow and a turbulent systolic jet, can be suggestive of RAS, the most important single indicator is a peak systolic velocity (PSV) > 180 cm/sec. The renal aortic ratio (RAR) is the ratio of renal PSV to the aortic PSV. A RAR > 3.5 indicates > 60% stenosis. The renal resistive index does not directly assess renal artery flow.

20. A 28-year-old man with Kallmann syndrome is treated with exogenous testosterone. He desires a biological child. Semen analysis reveals a volume of 2.2 ml and azoospermia. The next step is:

A. post-ejaculate urinalysis.
B. assay testosterone, LH, and FSH.
C. administer GnRH.
D. administer hCG and recombinant FSH.
E. testicular sperm extraction for IVF.
","D","Kallmann syndrome, anosmia or hyposmia associated with hypogonadotropic hypogonadism is commonly diagnosed due to a delayed onset of puberty. Most patients are treated with exogenous testosterone at the time of their diagnosis for virilization. Testosterone is easy and cost effective to administer compared to daily injections of alternative hormones. Azoospermia in these patients results from the combination of inadequate levels of intratesticular testosterone, and the patient's natural absence of stimulatory pituitary hormones. When the patient desires to father children, spermatogenesis can be brought about by discontinuing parenteral testosterone and beginning daily IM or SQ injections of hCG and recombinant FSH. If the response is insufficient, GnRH administration may be considered but is expensive and requires I.V. administration. In patients with low ejaculate volume (< 1.5 ml), a post-ejaculate urine is useful to diagnose retrograde ejaculation, this patient's ejaculate volume is normal. Assay of testosterone, LH and FSH is not needed in this patient in whom a diagnosis of Kallmann

syndrome has already been made. It would be inappropriate to proceed with testicular sperm extraction without first giving the hormonal treatment necessary to stimulate spermatogenesis.

21. A healthy 66-year-old woman has a loopogram as shown seven years following cystectomy and ileal conduit for bladder cancer. CT scan demonstrates bilateral hydronephrosis and no evidence of recurrent disease. Chest x-ray and urine cytology are normal. Serum creatinine is 1.8 mg/dl. A renogram is also shown. The next step is:

A. looposcopy.
B. bilateral percutaneous nephrostomy.
C. stomal revision.
D. revision of left ureteroileal anastomosis.
E. left nephroureterectomy.

","E","This patient has developed upper tract deterioration following cystectomy and ileal conduit diversion. This has been reported in some series to occur in over 50%25 of patients with long-term followup. The renogram in this instance demonstrates no obstruction to the right renal unit with hydronephrosis likely the result of chronic reflux. The renogram also demonstrates no significant function of the left renal unit. Because there is no reflux into the left system it cannot be monitored as to the possible development of upper tract urothelial carcinoma. In this setting, nephroureterectomy is recommended. Looposcopy will not add to the evaluation as it will not provide access to the left system. Bilateral percutaneous nephrostomy is not indicated because there is no evidence of obstruction of the right side. Similarly, there is no evidence of stomal stenosis. Revision of left ureteroileal anastomosis should not be undertaken for a non-functioning kidney. Another option would be left nephrostomy tube placement, antegrade studies, and selective cytology to further risk stratify the patient prior to making a final decision.

22. A 64-year-old man had a TURP six months ago and has an AUA Symptom Score of 5. He has persistent gross hematuria requiring cystoscopy and clot evacuation. Friable prostatic tissue was noted during cystoscopy. He does not wish to undergo further surgical treatment. The next step is:

A. tamsulosin.
B. finasteride.
C. tamsulosin and finasteride.
D. bicalutamide.
E. antibiotics for one month.
","B","Finasteride is an effective option for the management of gross hematuria after TURP for BPH. None of the other listed treatments (e.g., tamsulosin and bicalutamide) have efficacy or have been evaluated in this setting. It is known that one of the early effects of finasteride is the intraprostatic suppression of vascular endothelial growth factor. Clinically, finasteride has been shown to effectively treat post-prostatectomy hematuria, especially in the presence of friable prostate tissue. If hematuria does not resolve with this therapy then evaluation of the upper urinary tract should be considered to rule it out as the source of bleeding. Prolonged antibiotics would only be indicated in the setting of UTI suspected to be of prostatic origin.

23. A 56-year-old man has low libido and a normal physical exam. Morning serum testosterone is 365 ng/dl and prolactin is 48 ng/ml (normal < 20 ng/ml). The next step is:

A. repeat prolactin assay.
B. serum LH assay.
C. pituitary MRI scan.
D. testosterone replacement.
E. bromocriptine.

","A","Elevated serum prolactin from a pituitary tumor that causes clinical symptoms such as low libido, infertility and gynecomastia is usually accompanied by a low serum testosterone. A mildly elevated prolactin, especially accompanying a serum testosterone in the normal range, is rarely clinically significant. Because prolactin has high interassay variability, an elevated prolactin should first be verified by repeat testing. With a normal testosterone, LH assay is unhelpful and exogenous testosterone is not indicated. Likewise, a man with mildly elevated prolactin and normal testosterone is unlikely to benefit from bromocriptine, and MRI is unlikely to reveal a clinically significant anatomic pituitary lesion. The most common cause of low libido in a man with a normal physical exam and adequate testosterone is psychological.

24. The neurovascular bundles on the prostate travel between the following two layers of fascia:

A. levator and prostatic.
B. Denonvilliers' and levator.
C. Denonvilliers' and prostatic.
D. lateral pelvic and prostatic.
E. lateral pelvic and levator.

","A"،"The prostate is covered with three distinct and separate fascial layers: Denonvilliers' fascia, the prostatic fascia, and the levator fascia. Denonvilliers' fascia is a filmy, delicate layer of connective tissue located between the anterior walls of the rectum and prostate. The neurovascular bundle on the prostate contain the cavernosal nerves and are located between the layers of the levator fascia and prostatic fascia.

25. A 71-year-old woman has difficulty voiding two hours following injection of a transurethral bulking agent. Residual urine volume is 400 ml. The next step is:

A. observation.
B. alpha-blockers.
C. CIC.
D. indwelling urethral catheter.
E. suprapubic cystostomy.
","C","Although the majority of patients do not have difficulties voiding following injection of a bulking agent, when retention does occur, it should be treated with CIC using a small (10- 14 Fr) catheter. Larger catheters, indwelling catheters. or large urethral sounds will push the mucosal blebs apart or cause molding of the bulking agent around the catheter. Suprapubic cystotomy can be used if long term catheterization is needed, although this is very rare.

26. A 27-year-old woman in the seventh week of pregnancy has right flank pain. Ultrasonography demonstrates a 5 mm calculus at the right UPJ. Urine culture is negative. The next step is:

A. hydration and analgesics.
B. stone protocol CT scan.
C. ureteral stent.
D. percutaneous nephrostomy.
E. SWL.

","A","Between 66%25 and 85%25 of women with ureteral colic will spontaneously pass their calculi with hydration and analgesic therapy. If the calculus fails to pass with conservative therapy, a ureteral stent should be placed cystoscopically with sonography or minimal radiographic imaging, as the first trimester presents the period of greatest risk of teratogenicity and spontaneous abortion. Ureteroscopy is an acceptable alternative. Fluoroscopy should be avoided .Pregnancy is an absolute contraindication for the use of SWL.

27. A 25-year-old man has a solid testes mass. His tumor markers are negative. He has an 8 cm retroperitoneal mass and multiple 1-2 cm. pulmonary metastases. His radical orchiectomy reveals pure seminoma. After chemotherapy his retroperitoneal mass is 2.8 cm and his pulmonary masses have resolved. PET/CT reveals no enhancement of his retroperitoneal mass. The next step is:

A. observation.
B. percutaneous biopsy of retroperitoneal mass.
C. resection of retroperitoneal mass.
D. bilateral RPLND.
E. salvage chemotherapy.

","A","PET imaging is useful to assess post-chemotherapy residual masses after treatment of seminoma. Lesions that are less than 3 cm or non-enhancing can be safely observed as over 90%25 of seminoma postchemotherapy masses are fibrosis. Percutaneous biopsy is not reliable since the masses can be heterogeneous. Resection of non-enhancing masses is not necessary and resection of seminoma post-chemotherapy masses can be technically difficult or impossible. Resection of the mass and bilateral RPLND would be appropriate for NSGCT post-chemo masses but are not necessary in the post-chemo seminoma setting because of the low risk of cancer or teratoma in the remainder of the retroperitoneum. Salvage chemotherapy is not necessary and is highly toxic.

28. Normal bladder compliance during physiologic filling is primarily due to:

A. autonomic nerve activity.
B. circulating hormones.
C. cholinergic receptor activity.
D. local secretion of nitric oxide.
E. bladder wall viscoelasticity.

","E","The main determinants of compliance are the elastic and viscoelastic properties of the bladder. When these are destroyed as in fibrosis of the bladder, poor compliance results.

Neurogenic influences may be operative in late stages of filling. Bladder smooth muscle maintains a steady level of contractility and tone that is dependent on the activity in the autonomic nerves, circulating hormones, local metabolites, locally secreted agents such as nitric oxide, and temperature.

29. A 32-year-old man has azoospermia. Y chromosomal microdeletion assay reveals azoospermia factor b (AZFb) and azoospermia factor c (AZFc) deletions. The next step is:

A. adoption.
B. clomiphene citrate.
C. recombinant FSH.
D. testis biopsy.
E. microsurgical testicular sperm extraction.

","A","The long arm of the Y chromosome harbors genes intrinsic to spermatogenesis, including the azoospermia factor (AZF). While males with AZFc deletions may or may not have sperm in the seminiferous epithelium, an AZFa and/or AZFb deletion in combination with an AZFc deletion uniformly results in a Sertoli cell only phenotype. Biopsy is unnecessary, and microsurgical testicular sperm extraction will not yield sperm. Endocrine therapy with clomiphene citrate to stimulate Leydig cell production of testosterone, or with recombinant follicle stimulating hormone to stimulate Sertoli cell function, will not yield sperm as no germ cells are present.

30. A 71-year-old man previously treated for CIS of the bladder has a positive fluorescence in-situ hybridization (FISH) urine test. Cytology, CT urogram, and cystoscopy are normal. The next step is:

A. observation.
B. repeat FISH test.
C. random bladder biopsies.
D. bilateral upper tract cytology.
E. bilateral ureteroscopy.

","C","The urinary FISH test identifies intranuclear chromosomal abnormalities that have been associated with bladder cancer. Specifically it detects aneuploidy for chromosome 3,7 and 17 and homozygous loss of chromosome 9p21. This test is currently FDA approved for the evaluation of microscopic hematuria and bladder cancer. In 2007 Yoder and colleagues reported that 35/56 (62.5%) patients with prior urothelial carcinoma who had a normal evaluation by cystoscopy and a positive FISH subsequently were detected to have recurrent disease. The appropriate workup of this patient population remains highly variable, however random bladder biopsies are considered the standard of care for patients with a positive urine cytology and negative cystoscopy and should be regarded as a minimum evaluation in this high risk patient. The yield of upper tract endoscopy and cytology in the setting of a normal CT urogram is low and should be discouraged as an initial diagnostic maneuver. Because the patient has a history of bladder cancer, the most likely site of recurrence is in the bladder. Repeat FISH will not add anything to the evaluation, whether positive or negative.

31. A 58-year-old man has frequency and bothersome nocturia with an AUA Symptom Score of 16. History and physical exam are normal, Urinalysis is negative. The next step is:

A. frequency-volume chart.
B. serum creatinine.
C. uroflowmetry.
D. cystoscopy
E. pressure-flow study.

","A","According to the recently updated guidelines on management of BPH by the AUA Practice Guideline Committee, recommended components of the diagnostic algorithm for routine evaluation include history, assessment of LUTS with an AUA Symptom Score, physical examination including DRE and urinalysis. A frequency-volume chart should be obtained if nocturia is a predominant symptom. Urodynamics, cystoscopy and serum creatinine are not required as part of the initial evaluation.

32. A 52-year-old man requires six units of packed red blood cells over a 48-hour period five days after a percutaneous nephrolithotomy. He remains hypotensive at 85/50 mmHg. Imaging study is shown. The next step is:

A. emergent exploration and repair of kidney.
B. selective arterial embolization.
C. bedrest, blood transfusion, and close monitoring.
D. insertion of a large-bore percutaneous tamponade catheter in nephrostomy tract.
E. insertion of an indwelling ureteral stent and urethral catheter decompression.

","B","Delayed bleeding after percutaneous procedures is almost always secondary to pseudoaneurysms or arteriovenous fistulas. Both can present with delayed and intermittent bleeding. Arteriovenous fistula bleeding is more likely to be continuous compared with pseudoaneurysms. Management is renal angiography during active bleeding (with the aid of an arterial vasodilator such as papaverine if necessary) and highly selective angiographic embolization. Continued conservative therapy would be incorrect in the face of hemodynamic instability after appropriate resuscitative efforts. A tamponade catheter may be used as a temporizing measure if the nephrostomy tract is still present. The image presented demonstrates absence of a nephrostomy tube. An indwelling ureteral stent will not address the ongoing hemorrhage. Emergent exploration may lead to need for nephrectomy and a conservative approach is more appropriate.

33. A 40-year-old newly-diagnosed HIV positive man has a 2.0 cm. painless red nodule on his glans penis. A biopsy confirms Kaposi's sarcoma. The next step is:

A. initiate highly active antiretroviral therapy (HAART).
B. systemic chemotherapy.
C. laser ablation.
D. excise the lesion.
E. partial penectomy.

","A","The first step in treatment of Kaposi's sarcoma in patients with HIV is to initiate HAART or to optimize the HAART regimen, which generally results in remission of Kaposi's sarcoma. Local treatment can include laser therapy, cryotherapy, surgical excision, application of topical retinoids. Disseminated or visceral Kaposi's sarcoma is treated with combination chemotherapy. The gold standard combination therapy of doxorubicin, bleomycin and vincristine has been replaced in recent years with liposomal anthracyclines, such as doxorubicin. Kaposi's sarcoma is also often seen in immunosuppressed patients, such as renal transplant patients, and in this setting the treatment is a reduction of the immunosuppressive regimen. In the current era of immunosuppression, the frequency of this is diminished.

34. A 78-year-old malnourished woman with a history of prior pelvic radiation for cervical cancer undergoes a radical cystectomy and ileal loop diversion with bilateral ureteral stents for urothelial cancer. At the time of surgery, the bowel shows signs of radiation changes. Four days post-operatively, her urine output decreases with a marked increase in output from her abdominal drain. The next step is:

A. parenteral hyperalimentation.
B. placement of a catheter into the ileal stoma.
C. bilateral percutaneous nephrostomy tube placement.
D. revision of the ureteroileal anastomoses.
E. excision of the ileal loop and replacement with a transverse colon conduit.

","B","Leakage and fistula from urinary diversion occur in 2 to 9% of patients. However, 20 to 60% of these fistulae close spontaneously. Conservative management can be safely attempted assuming the patient is not septic and that adequate drainage is maintained. Leakage could be from the ureteral ileal anastomosis or from the butt end of the conduit . Bilateral ureteral stents are already in place, which should address any concerns about a ureteral ileal anastomotic leak. Therefore, the best initial therapeutic maneuver in this patient is placement of a catheter into the ileal loop to facilitate drainage. While hyperalimentation is important in malnourished patients and should also be initiated, this would not address the immediate issue of the leak. If the stomal catheter failed to decrease the fistulous output, bilateral percutaneous nephrostomy tubes could be placed to divert the urinary stream. If this failed, surgical intervention would be required to address the problem.

35. During ureteroscopic lithotripsy of an impacted 8 mm calcium oxalate stone in the proximal ureter, the ureter is cleared, but a 3 mm fragment is detected on fluoroscopy 1 cm lateral to the ureter. The next step is:

A. observation.
B. ureteral stent.
C. basket extraction.
D. percutaneous nephrostomy.
E. retroperinoscopy.

","B","A small stone fragment pushed through the wall of the ureter, if completely outside the wall and uninfected, is rarely a clinical problem and no intervention, such as

retroperitoneoscopy or basket extraction, needs to be directed towards it. The ureteral perforation through which this fragment passed is managed by ureteral stenting; observation without a stent would lead to extravasation and a higher risk of stricture. Percutaneous nephrostomy and drain placement are not necessary if a stent can be inserted.

36. A man with castrate-resistant prostate cancer and bone metastases is on leuprolide acetate injections and intravenous zoledronic acid injections. He is asymptomatic. Zoledronic acid injections must be stopped if the patient develops:

A. fever.
B. fatigue.
C. a tooth abscess.
D. a pathologic fracture.
E. severe osteoporosis.

","C","Zoledronic acid and other bisphosphonates have become an important part of the management of patients with prostate cancer bone metastasis. These compounds reduce bone resorption by inhibiting osteoclastic activity and proliferation. In patients with progressive hormone refractory bone metastatic prostate cancer, zoledronic acid has been shown to reduce the incidence of skeletal events in a randomized prospective trial. Adverse events include fatigue, myalgias, fever, anemia and elevations in serum creatinine. Osteonecrosis of the mandibular bone is a severe complication of bisphosphonates usually associated with patients undergoing dental work or who have poor dentition or chronic dental disease. The bisphosphonates should be immediately discontinued in the setting of osteonecrosis or expected invasive dental procedures.

37. In the management of advanced urologic malignancies, stimulation of T cells by dendritic cells:

A. is restricted to the Class I MHC (major histocompatibility complex).
B. causes T cell differentiation into plasma cells.
C. is suppressed by TNF (tumor necrosis factor).
D. is augmented by blockade of the T cell receptor.
E. produces interleukins.

","E","An integral part of the immune response involves the activation of T cells by dendritic or antigen presenting cells. This interaction occurs via the T cell receptor in the context of MHC (major histocompatibility complex) class II molecules. B cells, unlike T cells, can be directly stimulated by antigen, which then allows B cell differentiation into antibody producing plasma cells. TNF (tumor necrosis factor (and other cytokines are produced by activated T cells and augment the cellular and humoral immune response. An FDA-approved autologous dendritic cell therapy, sipuleucel-T, is currently available for the treatment of advanced prostate cancer .

is FDA prostCa vaccine

38. A 38-year-old woman has intermittent right flank pain. CT scan shows delayed filling of a right upper pole anterior calyceal diverticulum containing an 8 mm stone. The best treatment is:

A. observation.
B. SWL.
C. ureteroscopy, incision of the diverticular neck and laser lithotripsy.
D. percutaneous nephrostolithotomy and dilation of the infundibular neck.
E. laparoscopic ablation of calyceal diverticulum and stone removal.

","C","Observation is unacceptable in this symptomatic patient with a diverticular stone. Although SWL may be used successfully to treat a subset of patients with stones in calyceal diverticula that have a broad infundibular neck, the overall stone free rates with SWL are unacceptably low. Percutaneous nephrostolithotomy is not only associated with the highest stone-free rate, but also the procedure results in resolution of the diverticulum. However, anteriorly-located diverticula necessitate percutaneous access through the renal parenchyma with a high risk of bleeding complications. The ureteroscopic approach is ideal for upper pole calyceal diverticula with < 2 cm stones. Laparoscopic ablation would be indicated for an anterior calyceal diverticulum > 2 cm.

39. In a patient with muscle invasive urothelial carcinoma, the pathologic characteristic that predicts a poor response to neoadjuvant chemotherapy is:

A. squamous differentiation.
B. lymphovascular invasion.
C. micropapillary variant.
D. p53 mutation.
E. small cell component.

","C","Patients with histologic variants of urothelial carcinoma including squamous differentiation and small cell component actually appear to respond better to neoadjuvant chemotherapy. Similarly patients with a p53 mutation and lymphovascular invasion are considered higher risk patients with urothelial cancer and are recommended to have neoadjuvant chemotherapy. Micropapillary variant of urothelial carcinoma is the one variant that does not appear to respond to chemotherapy and requires immediate cystectomy.

40. A 62-year-old woman with multiple sclerosis has persistent urinary urgency and frequency. Pressure flow urodynamics reveal detrusor overactivity during bladder filling that reproduces her symptoms as well as increased pelvic floor EMG activity during voiding. An MRI scan will most likely reveal evidence of demyelination:

A. of the cerebral cortex.
B. of the cerebellum.
C. between the pons and sacral spinal cord.
D. between the conus medullaris and the cauda equina.
E. between the sacral spinal cord and the bladder.

","C","Multiple sclerosis may involve the central and/or peripheral nervous systems. Depending on the location, level and extent of demyelination, a variety of urodynamic patterns may result. Pelvic floor EMG activity in this individual is increased during voiding which suggests striated sphincter dyssynergia, a urodynamic finding that exists only with

neurological lesions between the pons and the sacral spinal cord. Lesions at or distal to the sacral spinal cord would likely result in detrusor areflexia and lesions above the pons result in detrusor overactivity with synergistic activity of the proximal and distal sphincter mechanisms.

41. A 28-year-old woman awaiting a liver transplant because of primary biliary cirrhosis is symptomatic from a 9 mm proximal ureteral stone. Management should be:

A. observation and hydration.
B. ureteral stent.
C. SWL.
D. stent placement and SWL.
E. ureteroscopic laser lithotripsy.

","E","A 9 mm stone in the proximal ureter has little chance of spontaneous passage; as such, observation is futile. Although SWL and ureteroscopy are both acceptable treatment options for management of a proximal ureteral stone ،uncorrected bleeding diathesis frequently found in patients with liver dysfunction is a contraindication to SWL. Although it is optimal to correct bleeding diatheses prior to surgical intervention for stones, full correction of coagulation parameters often requires administration of multiple blood products and lengthy hospital stays. Ureteroscopy and Holmium:YAG laser lithotripsy has been shown to be safe and effective in patients with uncorrected bleeding disorders.

42. A six-year-old girl undergoes bilateral ureteral reimplantation. On the first post-operative day, she has severe bladder spasms refractory to parenteral opioids and oral antimuscarinic agents. Her urine is clear, and the creatinine is 0.4 mg/dl. The next step is:

A. oral alpha blocker.
B. oral benzodiazepine.
C. rectal acetaminophen.
D. I.V. ketorolac.
E. caudal block.

","D","For post-operative bladder spasms refractory to the conventional pain management using opioids and antimuscarinics, intravenous ketorolac (NSAID) administered at 0.25 to 0.5 mg/kg every six hours is effective in reducing bladder spasms following bladder surgery. However, significant adverse effects have been reported including renal failure, prolonged bleeding and hypersensitivity reactions. It should be avoided in patients with renal insufficiency, NSAID sensitivity, persistent post-operative bleeding, and dehydration. Other treatments such as alpha blocker, benzodiazepine, rectal acetaminophen and caudal block do not provide any additional benefit.

43. A 26-year-old woman has a 2 cm, circumferentially calcified saccular aneurysm on renal arteriography. Her blood pressure is 126/82 mm Hg and her creatinine is 1.1 mg/dl. She is newly married and considering pregnancy. The next step is:

A. observation.
B. serial imaging.
C. lisinopril.
D. endovascular stent.
E. surgical repair.

","E","Pregnancy is a risk factor for renal artery aneurysm rupture, regardless of size or calcification, therefore observation and serial imaging are not recommended. If this was not a woman of child-bearing age, the aneurysm could be followed, as it is not large and completely calcified. Lisinopril will not reduce the likelihood of rupture or ischemic damage. An endovascular stent is not recommended for someone in this age group ،due to the risk of lifelong anticoagulation therapy. She should be counseled to undergo surgical treatment of her aneurysm prior to becoming pregnant.

44. A 35-year-old man with uric acid calculi has a nighttime urinary pH of 5.5, despite potassium citrate 40 mEq TID. The next step is adding:

A. allopurinol.
B. acetazolamide.
C. ascorbic acid.
D. sodium citrate.
E. hydrochlorothiazide.

","B","Acetazolamide is effective in increasing the urinary pH in patients with uric acid and cystine stone formation who are already taking potassium citrate. However, 50%25 of patients may discontinue the medication due to adverse effects. Acetazolamide, a carbonic anhydrase inhibitor, leads to an increase in urinary bicarbonate and increased H+ reabsorption. It has been shown to increase overnight urine pH when given at bedtime. Allopurinol is effective for uric acid stones but does not increase pH, and might be considered but only if urinary uric acid levels were high. Sodium citrate has been shown to be less effective than potassium citrate therapy. Hydrochlorothiazide may increase urine uric acid.

45. A five-year-old boy has developed frequent daytime urination, voiding at least every 30 minutes. He has no nocturia. Since toilet training at age two, he has been continent day and night. His urinalysis is normal. The most appropriate management is :

A. reassurance.
B. VCUG.
C. antimuscarinics.
D. glucose tolerance test.
E. cystoscopy.

","A","Excessive urinary frequency in children is occasionally seen. The diagnosis is made by noting that the patient is continent of urine day and night and the urinalysis is normal. The key to the diagnosis is that the frequency does not persist at night. In this child, his urinary frequency falls under the category of a nervous habit, and may be associated with emotional stress. Urinary frequency generally goes away over time averaging three to six months. It can return in some patients but eventually resolves. Antimuscarinics seldom help these patients whose bladders are normal. Invasive testing such as VCUG and cystoscopy are not indicated since the findings are almost always normal. In the presence of a normal urinalysis, glucose tolerance testing is not indicated.

46. A 38-year-old woman develops monthly cyclical episodes of hematuria and menouria one year following Caesarean section. She does not desire more children. CT urogram demonstrates contrast in the bladder and uterine cavity; there is no hydronephrosis. The best treatment is:

A. cystoscopy, fulguration and catheter drainage.
B. LH-RH agonist.
C. transvaginal repair with Martius flap.
D. transvaginal repair with omental flap.
E. transabdominal repair with hysterectomy.

","E","Vesicouterine fistula (also known as, Youssef syndrome) is found to be the etiology for 2-4% of all genitourinary fistula. A vesicouterine fistula is a rare complication that classically develops following a Cesarean section. The mechanism of the injury occurs as a consequence of incorporating the bladder wall with the sutures used to close the Cesarean section site, hence, it is frequently a delayed complication noted only as the sutures dissolve. It is also occasionally seen to arise following a dilation and curettage (D and C) procedure or as a consequence of a vaginal delivery following a prior Cesarean section.Due to the sphincteric like activity of the uterine cervix, these patients may not present with urinary incontinence. Indeed, 60% of the patients will present with intermittent or cyclical gross hematuria (menouria; menstrual tissue passed through the urine when voiding) as their only symptom, 20% with chronic urinary incontinence (incompetent uterine sphincter), and 20% with the classic Youssef triad: menouria, amenorrhea (all menstrual tissue passed into the urine) and chronic urinary incontinence.Since radiographic and endoscopic studies may frequently be inconclusive, the diagnoses of this complication requires a high degree of clinical suspicion. Tests used will consist of cystoscopy in an attempt to visualize the fistula tract, ultrasonography, CT cystogram, MRI scan, or hysterosalpingogram, the latter of which is presumably the most certain diagnostic technique available. Once the diagnosis is made, additional tests to rule-out concurrent ureteral injuries must be performed.If the diagnosis of a vesicouterine fistula is made within three to six months of the surgery, conservative treatment with a indwelling urethral catheter and endocrine suppression of menstrual flow has been successful in > 50% of patients. Once the tract has matured and epithelized as in this case, treatment is based on the future fertility desires of the patient. If the individual does not desire to have further children, the most definitive treatment is by transabdominal hysterectomy and repair of the bladder. If additional child bearing is requested, either transvaginal, or transabdominal approaches may be used dependent upon the location of fistula. Juxtaposition of adjacent tissue such as omentum or a labial fat pad (Martius flap) greatly reduces the likelihood of recurrence. These dissections are frequently complicated and placement of bilateral ureteral stents prior to the surgery to help identify the ureters is recommended.

47. Condyloma lata are associated with:

A. cervical carcinoma.
B. gonococcal urethritis.
C. herpes simplex virus.
D. secondary syphilis.
E. AIDS-related complex.

","D","Condyloma lata are a cutaneous manifestation of secondary syphilis. They appear as flesh colored or hypopigmented, macerated papules or plaques. They most commonly involve genital and anal areas. The lesions are typically smooth and moist. Condyloma lata resemble condyloma acuminata but are distinguished by their smooth, flat and moist appearance.

Condyloma lata have not been associated specifically with cervical carcinoma, gonococcal urethritis, herpes simplex, or HIV.

48. A seven-year-old boy with a seizure disorder is managed with a ketogenic diet and topiramate, has one episode of painless gross hematuria. Renal ultrasound demonstrates 3 mm stones in the lower pole of both kidneys without hydronephrosis. The next step is:

A. consult neurologist for alternative seizure treatment.
B. urinary alkalinization.
C. oral penicillamine.
D. SWL.
E. ureteroscopic laser lithotripsy.

","A","Both ketogenic diet and topiramate (Topamax (®can cause calcium phosphate stones. This child with small non-obstructing kidney stones, discovered after a single episode of painless gross hematuria, does not require surgical intervention at this time. Seeking alternative seizure pharmacotherapy by consulting a neurologist is the best next step .The stone is likely calcium-based, and thus medical therapy aimed at uric acid (raise the pH) or cystine (oral penicillamine) stones are not appropriate.

49. While performing a videourodynamic study in a patient with neurogenic bladder, the patient develops a severe headache. The neurological condition most likely to be associated with this event is:

A. hemorrhagic stroke in globus pallidus.
B. conus medullaris injury.
C. spinal cord infarct at T4.
D. astrocytoma displacing the reticulospinal tract at T8.
E. multiple sclerosis.

","C","Autonomic dysreflexia is a medical emergency caused by over stimulation of the sympathetic nervous system in individuals with spinal cord injuries at or above the 5th thoracic (T5) spinal cord levels, although patients with injuries between T6-10 maybe susceptible. Autonomic dysreflexia is classically stimulated by: An overfilled bladder, colonic distension (constipation), decubitus ulcer or silent orthopedic fracture. Patients exhibiting autonomic dysreflexia are symptomatic with complaints of a headache, flushing and diaphoresis (above the level of the spinal cord lesion), hypertension and bradycardia. Bradycardia occurs due to a reflex stimulated from stretch on the atrial ventricular node by the elevation in blood pressure. When seen in the office setting, the first step should be to empty the bladder and remove all noxious stimuli, i.e., cystoscope, urodynamic catheter, from the bladder. If the elevation in blood pressure does not respond, the patient should be treated with ½ to 1 inch of nitropaste to the chest wall. If rebound hypotension occurs the nitropaste maybe rapidly wiped off of the skin. Other options of pharmacologic therapy for autonomic dysreflexia in the office setting include oral or sublingual nifedipine. However, rebound hypotension can be problematic and difficult to deal with.

50. A 55-year-old diabetic woman has new onset pneumaturia. The next step is:

A. pelvic CT scan.
B. cystoscopy.
C. urine culture.
D. cystogram.
E. barium enema.

","C","Pneumaturia, the passage of gas in the urine, may be due to a fistula between the intestine and bladder or due to gas-forming UTI. Common causes of fistula are diverticulitis, carcinoma of the sigmoid colon, and regional enteritis (Crohn disease). Patients with diabetes mellitus may have gas-forming infections, with carbon dioxide formation from the fermentation of high concentrations of sugar in the urine. In the latter situation, the microorganism most commonly responsible for cystitis is E. coli. Approximately 60% of cases of emphysematous cystitis occur in diabetics. In the current case, a urinalysis and urine culture should be performed first. Additional tests can be performed selectively based on the results of urinalysis and urine culture. Culture results showing multiple organisms is suggestive of a colovesical fistula.

51. In 46 XX female patients with CAH, the clitoral nerves at the mid-portion of the enlarged phallic shaft are found:

A. ventrally.
B. dorsally.
C. laterally.
D. between the urethra and vagina.
E. between the shafts of the corpora cavernosa.

","B","The clitoral neural anatomy in the masculinized female patients with CAH is similar to that of the normal male or female phallus. At the mid-portion of the enlarged clitoral shaft, the nerves are found dorsally. This is the area which must be preserved for possible future genital sensation after the feminizing genitoplasty.

52. A 57-year-old woman reports a vaginal bulge ten years after hysterectomy. On examination, she is found to have anterior prolapse, with the most distal point noted at her hymenal ring. Her vault and posterior wall show no prolapse. The POP-Q points consistent with her exam are:

A. Aa -1, C 0, Ap -3, stage 1.
B. Aa -1, C 0, Ap -1, stage 1.
C. Aa 0, C -7, Ap -3, stage 2.
D. Aa 0, C -7, Ap -1, stage 2.
E. Aa +1, C +2, Ap -3, stage 3.

","C","The POP-Q (pelvic organ prolapse quantification) is a classification system used to quantify the degree of pelvic organ prolapse (POP). Nine points are measured in relation to the hymenal ring, which is designated as "0" (zero). Any points located above the hymenal ring are given a negative value, corresponding to the number of centimeters (cm) the point is above the hymen, whereas points distal to the hymen are given positive values. Aa and Ap correspond to the point three cm up on the anterior and posterior walls, respectively, and will be -3 if there is no POP. Ba and Bp correspond to the distal-most aspect of the anterior and posterior walls, respectively. The well-supported vault (C) should be at about -7 to -9. This patient has a cystocele and no posterior or apical prolapse. The distal-most portion of her

anterior vagina is at 0, the level of the hymenal ring. Ap, which corresponds to approximately the level of the bladder neck, is -3. The vault is supported at -7. This is stage 2, which is defined as the most distal point of the POP being between +1 and -1, or within 1 cm of the hymen. Other points of measurements in POP-Q include the genital hiatus (GH), perineal body (PB), and total vaginal length (TVH).

53. A 26-year-old man has progressive left flank pain 17 years after an open pyeloplasty. Diuretic renography reveals 28%25 function from his left kidney with delayed renal pelvic drainage (T1/2 = 40 minutes). Retrograde ureterogram shows a 1 cm narrowing at the UPJ. The best treatment is:

A. balloon dilation.
B. endopyelotomy.
C. nephrectomy.
D. pyeloplasty.
E. ureterocalycostomy.

","B","Pyeloplasty may result in early or delayed failure. Failure is most likely secondary to an anastomotic stricture. Transmural endopyelotomy whether performed in a retrograde or antegrade approach is the treatment of choice. Ureterocalycostomy may be considered, but only after less invasive treatments. It should be reserved for patients with intrarenal pelvis, dilated lower calyces or a lengthy proximal ureteral stricture. Nephrectomy should be reserved for kidneys with minimal renal function. Balloon dilation is suboptimal therapy. Pyeloplasty, whether open or laparoscopic should be reserved for endoscopic failures.

54. A six-year-old boy has the sudden onset of gross hematuria, urgency, and frequency. Urinalysis shows 5-10 WBC/hpf and gross blood. Urine culture is negative. Ultrasound shows diffuse bladder wall thickening but no hydronephrosis or renal mass. The next step is:

A. observation.
B. antibiotics.
C. VCUG.
D. non contrast CT scan.
E. cystoscopy.

","A","This boy has typical signs and symptoms of viral cystitis. Adenovirus is the most common virus although viral cultures are infrequently done in this setting. Supportive therapy is the mainstay of management. An ultrasound should be done to rule-out other serious causes of hematuria. Bladder wall thickening is to be expected in the acute phases of a viral infection. Symptoms usually resolve within two to four weeks. Antimuscarinics can be used when the urgency and frequency is more severe. Ribavirin can be considered in highly symptomatic patients, especially in those that are immunosuppressed. There is no indication for antibiotics. If his symptoms do not resolve after a few weeks, then one can get a VCUG or perform cystoscopy to rule out PUV or other pathology. However, doing this in the acute phase is premature since the clinical suspicion for valves is low. If he had valves, one would have expected symptoms prior to this time. The clinical suspicion for a stone is also low given

the ultrasound findings. Thus, getting a CT scan is not indicated especially in light of the unnecessary exposure to radiation which is a significant concern in children.

55. A 45-year-old obese man with untreated sleep apnea develops nocturnal enuresis. He has no daytime incontinence. Physical examination is unremarkable except for mild lower extremity edema. Urinalysis is negative, and his PVR is 30 ml. The most likely etiology of the enuresis is:

A. decreased secretion of ADH.
B. increased secretion of atrial natriuretic peptide.
C. detrusor overactivity.
D. mobilization of lower extremity edema.
E. hypercarbia induced drowsiness.

","B","Sleep apnea is a recognized cause of nocturia and secondary, or adult-onset, nocturnal enuresis. It causes nocturnal diuresis by a cascade of events which are precipitated by hypoxia which occurs during the intermittent occlusion that occurs with obstructive sleep apnea. The hypoxia-induced increase in right atrial transmural pressure leads to elevated atrial natriuretic peptide, resulting in increased nocturnal urinary output. Atrial natriuretic peptide secretion is induced by elevated intrathoracic pressures due to diaphragmatic contraction against a closed upper airway.

56. A 54-year-old man develops new onset of renal transplant hydronephrosis secondary to a 2 cm proximal ureteral stricture. Ultrasound reveals normal bilateral atrophic kidneys to be in situ. The next step is:

A. double-J stent placement.
B. chronic nephrostomy drainage.
C. antegrade ureteral balloon dilation.
D. pyeloureterostomy to native ureter.
E. pyelovesicostomy.

","D","Ureteral obstruction is difficult to manage in transplant kidneys. Long-term nephrostomy tube drainage increases infectious risks especially in immunocompromised patients and requires frequent tube changes. Double-J stents are difficult to place and replace in a retrograde fashion since the common ureteral reimplantation site for a transplant ureter is on the dome of the bladder. Antegrade balloon dilation of all ureteral strictures has poor long-term success. Open exploration is difficult due to the marked fibrous reactive tissue surrounding transplant kidneys. A pyelovesicostomy will freely reflux and may increase the risk of recurrent infections. Drainage through a native ureter anastomosed to the proximal renal pelvis (transplant kidney) is the best option for long-term success.

57. A 30-year-old man on CIC develops urinary incontinence three years after a spinal cord injury. Urodynamic testing demonstrates detrusor areflexia, and a detrusor LPP of 60 cm H2O at 200 ml. The next step is:

A. tamsulosin.
B. ephedrine.
C. Bethanechol.
D. oxybutynin.
E. dantrolene.

","D","Detrusor compliance may deteriorate in patients with spinal cord injury and detrusor areflexia. The development of incontinence suggests this occurrence. A detrusor LPP greater than 15 cm H2O indicates that compliance is impaired. In the absence of intervention, renal deterioration may occur. The best treatment is an antimuscarinic agent, such as oxybutynin. Ephedrine would be contraindicated as it may increase sphincter tone and increase detrusor LPP. An alpha-1-blocker may lower the detrusor LPP, but increase the incontinence. Bethanechol would also be contraindicated since it may increase detrusor pressure. Dantrolene is used to treat detrusor external sphincter dyssynergia via relaxation of skeletal muscle.

58. A 37-year-old woman with a suspected urinary fistula undergoes an in-office double dye test. There is orange staining of the upper gauze pad. The middle gauze pad is dry, and the lower gauze pad is slightly stained blue. The most likely diagnosis is:

A. ureterovaginal fistula.
B. vesicovaginal fistula.
C. ureterovaginal and vesicovaginal fistula.
D. ureterovaginal fistula and urethral leakage.
E. vesicovaginal fistula and urethral leakage.

","D","The in-office dye test begins with prescribing oral phenazopyridine several days prior to office visit. As expected, this process will turn the urine orange. At time of office visit, the bladder is filled with dilute methylene blue via urethral catheter infusion. Thus, bladder fluid will have blue coloration, and ureteral urine is expected to have orange discoloration. Three gauze pads are placed in the vagina, the upper pad is near the cuff, and the middle pad is within the vagina, usually above the bladder neck. The lower pad is usually below the bladder neck and urethra. In this pattern of staining, orange urine in the upper pad is concerning for the presence of a ureteral source of drainage into the vagina, most commonly a ureterovaginal fistula. The appearance of blue staining on the lower pad is most consistent with urethral leakage. Thus this patient has results suggestive of a ureterovaginal fistula and urethral leakage. The presence of blue on the upper or middle pad without leakage on the lower pad would suggest a vesicovaginal fistula.

59. The need for operative revision of stomal stenosis in a continent, catheterizeable channel is reduced by:

A. increasing size of catheter.
B. increasing frequency of catheterization.
C. steroid injection of stoma.
D. use of a pre-lubricated catheter.
E. leaving a catheter through superficial portion of stoma nightly.

","E","The usual first line approach for the problem of cutaneous stenosis of a Monti or Mitrofanoff channel is to leave a catheter through the stoma for some period of time. The concern with leaving a full-time indwelling catheter to "stent" the stoma for several days is that it may plug with mucous and introduce bacteria along its surface into the bladder. Mickelson, et. al., reported use of the "L-stent", a catheter with a knot tied just 1 2-inches from the tip, inserting it up to the knot at night with taping to hold it in place. This serves to stent only the cutaneous stoma and not enter the bladder itself. Their success with a modest

period of nighttime stenting was excellent. None of the other approaches listed have shown particular impact on this problem.

60. A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is :

A. radical eschar debridement.
B. split thickness skin grafts.
C. hyperbaric oxygen therapy.
D. remove urethral catheter and insert suprapubic tube.
E. observe for wound granulation.

","D","Multiple debridements of necrotic skin followed by skin graft coverage may eventually be needed with burn injuries to the genitalia. Early suprapubic urinary diversion simplifies wound care and prevents complications related to prolonged urethral catheterization. If a urethral catheter is used in a genitalia burn, it should be removed after 72 hours to prevent urethral slough and fistula formation. Hyperbaric oxygen therapy has been used to promote overall wound healing however there is no evidence that it prevents urethral complications. Split or full thickness skin grafting is used once granulation tissue is present and all non-viable tissue has been removed.

61. A 32-year-old man underwent a deceased donor kidney transplant six months ago with a donor kidney with two renal arteries. The lower pole renal artery was anastomosed separately to the distal external iliac artery. He now has a creatinine of 2.1 mg/dl and ultrasound shows hydroureteronephrosis of the transplanted kidney. The next step is:

A. CT scan.
B. diuretic renogram.
C. placement of a indwelling urethral catheter.
D. cystoscopy and retrograde stent insertion.
E. percutaneous nephrostomy.

","C","The first step necessary in assessing the renal transplant patient with new onset of hydronephrosis is the placement of a urethral catheter and obtaining a cystogram, to assess for the presence of reflux. In the absence of reflux and if urine output is diminished or if the creatinine does not decrease with urethral catheter drainage (drop in creatinine following placement of catheter indicative of bladder dysfunction), assessment for ureteral stricture would be necessary. If the serum creatinine is above 2 mg/dl or twice normal for age, false positive MAG 3 Lasix washout renal scans for obstruction are highly probable due to the decreased renal function. In patients with an elevated creatinine, percutaneous nephrostomy placement is both effective for treatment and can be an excellent way to diagnosis ureteric stenosis. The risks for complications of the ureter in renal transplantation is < 3%25 overall. The most common complications are those related to the vascular viability of the ureter and result in either urinary leakage or ureteral stenosis. Urinary leakage often occurs early after transplantation but ureteral stenosis can be insidious and late in the course. Risk factors for ureteral complications include advance donor age, delayed graft function, severe graft rejection and kidneys with two or more arteries. Cystoscopy and retrograde pyelography or placement of ureteric stents may be problematic due to the abnormal location of the ureteroneocystostomy following a renal transplant and should be considered only after confirmation that no vesicoureteral reflux is present and following the diagnosis of a ureteral stricture. A CT scan although confirmative for the diagnosis of hydronephrosis does not delineate the etiology for the radiographic finding.

62. A 16 cm intussuscepted ureteral segment is noted in the bladder after a difficult ureteroscopic stone extraction. The next step is:

A. nephrectomy.
B. transuretero-ureterostomy.
C. ureteral reimplantation.
D. percutaneous nephrostomy drainage.
E. primary uretero-ureterostomy.

","D","An intussuscepted ureteral segment noted after ureteroscopic stone extraction is a dramatic complication. Retrograde realignment for such a large segment is unrealistic. Percutaneous nephrostomy drainage preserves renal function and minimizes urinary extravasation. Nephrectomy or ileal ureteral replacement may be appropriate actions only after a discussion with the patient and their family. Transuretero-ureterostomy reconstruction places both kidneys at risk especially with a history of urinary stone disease.

63. Vesicoureteral reflux is suspected on antenatal ultrasound when:

A. there is upper pole hydroureteronephrosis.
B. the bladder is noted to be full on serial ultrasounds.
C. there is bladder wall thickening.
D. the degree of hydronephrosis varies with serial ultrasounds.
E. there is a two-vessel umbilical cord.

","D","On antenatal ultrasound, if the fetus has VUR, then the degree of fetal bladder fullness at the time of any particular study will determine how much volume is being refluxed and, thus, how much hydronephrosis is noted. Since bladder fullness differs between studies, the varying degrees of hydronephrosis is suggestive of VUR. A fuller bladder should cause an increase in hydronephrosis. Upper pole hydroureteronephrosis suggests an obstructive etiology; bladder wall thickness and persistent bladder fullness suggests bladder outlet obstruction or several other possibilities. A two-vessel cord is unrelated to the risk of reflux.

64. The metabolism of sildenafil may be inhibited by:

A. a fatty meal.
B. rifampin.
C. ritonavir.
D. warfarin.
E. doxazosin.

","C","High fat meals can inhibit the absorption of sildenafil and vardenafil but do not affect the absorption of tadalafil or the metabolism of PDE5 inhibitors. Ketoconazole, itraconazole, and protease inhibitors such as ritonavir can impair the metabolic breakdown of PDE5 inhibitors by blocking the CYP3A4 pathway. These agents may increase blood levels of inhibitors, requiring a PDE5 dose reduction. Agents such as rifampin may induce CYP3A4, enhancing the breakdown of inhibitors and requiring higher PDE5 doses. Warfarin and doxazosin have no effect on the metabolism of PED5 inhibitors. Doxazosin may exacerbate hypotensive changes with PED5 inhibitors.

65. A 32-year-old man with infertility has an ejaculate volume of 3 ml, sperm count of 13 million/ml, 50%25 motility, and an elevated serum FSH. Physical examination reveals bilaterally small testes, normal vasa, and no evidence of a varicocele. His 28-year-old wife has a normal evaluation. The most appropriate next step is:

A. intrauterine insemination.
B. testicular biopsy.
C. in vitro fertilization.
D. clomiphene citrate.
E. antisperm antibody testing.

","A","The couple is infertile due to idiopathic male factor. Testicular biopsy is unlikely to be helpful in a patient with oligospermia. Any intervention used in this setting is considered empirical. The main choice is between attempts to improve the husband's fertility or assisted reproductive techniques to improve the chances of conception without altering sperm quality. It is controversial whether clomiphene citrate is occasionally effective in men with idiopathic oligospermia but it is definitely not effective in an individual with an elevated serum FSH .This leaves either intrauterine insemination (IUI) or in vitro fertilization (IVF). It is most reasonable to start with IUI in this couple since the wife is under 30 and the husband's total motile sperm count is well above 10 million. IVF would be the first therapeutic option if there were a significant female factor or his sperm count were extremely low. The patient's motility is above the reference value for motility and therefore there is no indication for antisperm antibody testing.

66. An ectopic ureteral insertion into the vagina is the result of the ureteral bud arising or interacting:

A. proximally on the mesonephric duct.
B. distally on the mesonephric duct.
C. on the common excretory duct.
D. with ectopic metanephric blastema.
E. on the paramesonephric duct.

","A","The ureteric bud arises off of the mesonephric duct. The segment distal to the ureteric bud is called the common excretory duct. The point of origin of the ureteric bud is the ureteral orifice. If the ureteral bud arises more distally than normal, the ureteral orifice enters the bladder earlier than usual and migrates cranially and laterally and will likely be associated with reflux. If the bud arises more proximally on the duct the orifice ends up medial and caudal. A very proximal origin leads to a persistent position on the mesonephric duct and termination outside the bladder. In the male this is either in the epididymis, vas deferens, seminal vesicles, and prostate. In the female, the mesonephric duct becomes the epoophoron, oophoron, and Gartner's duct. An ectopic ureter draining into these structures ruptures into the fallopian tube, uterus, upper vagina or vestibule.

67. A pelvic examination of a 75-year-old woman two years after prior midurethral synthetic sling reveals extrusion of a small amount of mesh along her anterior vaginal wall. She is continent and denies any other urinary or vaginal complaints. She is not sexually active. Urinalysis is normal. The next step is:

A. observation.
B. removal of extruded mesh.
C. removal of entire midurethral sling.
D. oral estrogen hormone replacement.
E. removal of exposed mesh and simultaneous sling replacement.

","A","Intervention is not required for this patient at this time. Removal of the entire midurethral sling is not required for a small exposure of mesh. With partial sling excision, continence is maintained in the majority of patients; therefore, replacement of another sling would not be indicated. Removal of the entire midurethral sling is challenging, unnecessary and would likely lead to recurrent stress urinary incontinence. Transvaginal estrogen is thought to promote vaginal healing and is preferred over oral estrogen therapy due to other potential systemic effects. Extrusions that are larger or symptomatic should be treated. When a midurethral sling is eroded into or involves the urinary tract it should be treated with removal.

68. A 39-year-old woman has dysuria and frequency. Urinalysis shows 30 WBC/hpf and a few cocci. The midstream urine culture shows 103 coagulase negative Staphylococci/ml. The next step is:

A. phenazopyridine.
B. repeat midstream culture.
C. urine culture for mycobacteria.
D. antibiotic therapy.
E. catheterized urine culture.

","D","The standard definition of significant bacteriuria for a clean voided urine is > 105 CFU/ml) of a uropathogen. This criterion has stood the test of time for screening and epidemiological studies and for entering patients in clinical trials. However there are several important exceptions to its rigid use in clinical practice and one is in patients with a pyuria/dysuria syndrome. In these patients, a lower colony count may represent significant bacteriuria.Certain bacterial species such as coagulase negative Staphylococci grow slowly in urine and significant infections may only have counts of 103 CFU/ml. Since the patient has a symptomatic, culture-proven UTI, treatment with phenazopyridine alone would be inappropriate. Repeat urine culture (midstream or catheterized) is not indicated. Mycobacteria culture is indicated only in sterile pyuria.

69. A one-year-old boy with prune belly syndrome has chronic renal insufficiency. He undergoes abdominoplasty and bilateral orchidopexy and develops oliguria post operatively that does not respond to fluid boluses. Serum electrolytes reveal elevated BUN and creatinine, metabolic acidosis, and hyperkalemia. Sodium polystyrene enemas are given and I.V. sodium bicarbonate is administered. The patient develops abdominal cramping and muscle spasms. This is most likely due to:

A. hypokalemia.
B. hypophosphatemia.
C. hypermagnesemia.
D. hypocalcemia.
E. hyponatremia.

","D","This patient has developed acute renal failure (ARF). Children with a history of chronic renal insufficiency secondary to renal dysplasia are at significant risk for ARF after any major surgical procedure. Most cases are reversible. Patients with ARF can develop hyperkalemia, metabolic acidosis, hyperphosphatemia (from decreased renal excretion), and hyponatremia. The hypocalcemia that develops is due to several causes including hyperphosphatemia ، decreased intestinal calcium reabsorption, and Vitamin D deficiency. The most important acute reason for the hypocalcemia is the hyperphosphatemia. When correcting the metabolic acidosis, it is important to monitor the ionized calcium level, since this can drop precipitously. Signs and symptoms of hypocalcemia include cramping, tetany, and prolonged QT interval on EKG.

70. A 24-year-old man had a complete T4 spinal cord injury three weeks ago. He is wearing a condom catheter for continuous leakage and examination is significant for suprapubic fullness as well as flaccid muscle paralysis and absent somatic reflexes below the level of injury. The next step is:

A. suprapubic catheter.
B. suprapubic catheter and urodynamics.
C. CIC.
D. CIC and urodynamics.
E. CIC, urodynamics and renal ultrasound.

","C","This patient has classic symptoms of spinal shock which usually lasts 6-12 weeks in complete suprasacral spinal cord lesions. Lower urinary tract function with spinal shock is usually a combination of an acontractile and areflexic bladder and a competent bladder neck. This patient likely has suprapubic fullness due to an elevated residual with leakage secondary to overflow incontinence. This could be managed with either an indwelling catheter or the initiation of regular CIC. As this patient should have normal upper extremity function with this level of injury, and therefore should be able to perform CIC, there is no reason to place a suprapubic catheter. Urodynamic studies are indicated once spinal shock has resolved and bladder function has stabilized. The resolution of spinal shock is often heralded by the return of deep tendon reflexes.

71. During the course of a radical cystectomy, a rectal injury is primarily repaired. Three days postoperatively, the patient becomes septic. Physical examination reveals a tender surgical wound. The adjacent skin is edematous and has a bronze discoloration. Gram strain of the wound aspirate reveals gram-positive, club-shaped organisms. The next steps are surgical drainage, I.V. clindamycin and:

A. penicillin.
B. vancomycin.
C. fluconazole.
D. cefazolin.
E. tetracycline.

","A","The findings described are characteristic of Clostridium perfringens wound infection. Clostridial infections should be considered in any patient with a wound infection, especially if there has been an injury to the colon. The organism is an anaerobe with a positive gram stain and a club shape. Clinically, the patient appears toxic and a bronze discoloration of the involved skin is characteristic. Crepitus may be absent. Empirical therapy must cover clostridial infection. As opposed to clostridium difficile, in cases of suspected C. perfringens myonecrosis or anaerobic cellulitis and necrotizing polymicrobial infection, two drug combination treatment is recommended. I.V. penicillin (2 to 3 million units every 3 hours or 3 to 4 million units every 4 hours) or ampicillin (2 g every 4 hours ،(plus I.V. clindamycin (0.6 g every 6 to 8 hours) or metronidazole (1 g loading dose followed by 0.5 g every 6 hours), provides coverage of the anaerobic organisms likely to be involved. Vancomycin, cefazolin and tetracycline do not provide effective coverage of anaerobic gram positive species. Fungal wound infection is not suspected with the clinical picture and thus fluconazole is not appropriate.

72. A 64-year-old man undergoes a TURP using glycine irrigation. Vital signs are stable throughout the procedure but at the end of the procedure he is confused and nauseated. The most likely problem is:

A. sepsis.
B. hyperglycemia.
C. dilutional hyponatremia.
D. hemolysis.
E. hypovolemia.

","C","The TUR syndrome consists of mental confusion, nausea, vomiting, hypertension, bradycardia and visual disturbance. It is secondary to a dilutional hyponatremia from free water overload. Up to 20 ml/minute are absorbed during a resection. The risk increases with the size of the prostate and the length of the resection. Patients become symptomatic when the serum sodium concentration reaches 125 mEq/l. Ammonium intoxication has been suggested when glycine has been utilized as an irrigant. Alternative irrigants such as sorbitol, glycine and mannitol are isoosmolar and non-hemolytic, whereas water is a cheap irrigant but is hypoosmolar. Sorbitol is an inert sugar and would not lead to hyperglycemia. Sepsis in this scenario would usually be manifested with fever, hypotension and tachycardia. Hypovolemia would result in tachycardia and hypotension.

73. According to the 2009 AUA Guidelines on Surgical Management of Female Stress Urinary Incontinence (SUI), evaluation of the index patient with SUI should include a focused history, physical examination, urinalysis, PVR and:

A. pad test.
B. objective demonstration of SUI.
C. cystoscopy.
D. urodynamics.
E. urodynamics and cystoscopy.

","B","According to the 2009 Update for the Guideline on Surgical Management of Female Stress Urinary Incontinence, evaluation of the index patient should include the following components: focused history, focused physical examination, objective demonstration of SUI, assessment of PVR urine volume, urinalysis and urine culture if indicated. Additional diagnostic studies are not required but can be performed as needed and include pad testing, voiding diary, urodynamics, cystoscopy, and imaging.

74. An early manifestation of septic shock is:

A. bradycardia.
B. respiratory alkalosis.
C. high output renal failure.
D. decreased cardiac output.
E. decrease in plasma norepinephrine.

","B","Respiratory alkalosis is a very early sign of septic shock and is caused by the initial tachypnea stimulated by the sepsis. As hypoperfusion occurs, metabolic acidosis develops. Tachycardia, oliguria, increased cardiac output, and increased plasma norepinephrine occur in early septic shock.

75. A 58-year-old diabetic man with lupus recently discontinued a two week course of ibuprofen for a shoulder injury. Serum creatinine is elevated from a baseline of 0.9 to 2.6 mg/dl. Urinalysis reveals moderate proteinuria and WBC casts without eosinophiluria. Renal ultrasound demonstrates no hydronephrosis. The next step is:

A. observation.
B. urine culture and antibiotics.
C. prednisone.
D. cyclosporine.
E. percutaneous renal biopsy.

","A","Long-term use of NSAIDs such as ibuprofen may result in an acute interstitial nephritis (AIN). Clinically this presents as an acute renal failure with WBC casts. Proteinuria is common. Unlike other types of drug induced AIN; fever, and eosinophilia and eosinophiluria are uncommon. Lupus nephritis is characterized by red cell casts. Antibiotics are not indicated for AIN and culture will be negative. Immunosuppressants, such as steroids and cyclosporine, have no role in the therapy of AIN. Observation is appropriate as discontinuation of the offending agent, in this case ،the NSAID, will likely result in resolution of the AIN. Renal biopsy is over aggressive in this patient unless he fails a course of observation.

76. An 86-year-old man with nocturia times three, daytime frequency, urinary urgency, and occasional incontinence is treated with tolterodine. His incontinence worsens. Urinalysis is normal. The next step is:

A. urine culture.
B. PVR.
C. Uroflowmetry.
D. videourodynamics.
E. cystoscopy.

","B","Transient urinary incontinence occurs in almost one third of ambulatory elderly patients. LUTS in the elderly may be secondary to a number of medical conditions, including diabetes, immobility, congestive heart disease ،etc. Antimuscarinic agents may cause or worsen urinary incontinence in elderly patients with poor detrusor contractility. This may present with new or worsened incontinence due to overflow after the initiation of an antimuscarinic agent and can be diagnosed with the non-invasive measurement of a PVR. Urine culture is not indicated in the setting of a normal urinalysis. There is no need at this point to proceed to uroflowmetry, urodynamics or cystoscopy but these may be useful in further evaluation.

77. A 75-year-old woman with lower limb phlebitis has marked bilateral hydroureteronephrosis on a CT scan performed to screen for an intra-abdominal malignancy. She has had marked uterine prolapse (procidentia) for several years. Stress incontinence of urine is controlled by wearing a pad changed once daily. Residual urine is 100 ml. Serum creatinine is 3.2 mg/dl. Urine culture grows Klebsiella 105 col/ml. The next step in management should be antibiotic therapy and:

A. hysterectomy.
B. vaginal pessary.
C. anterior vaginal repair.
D. anterior vesicourethropexy.
E. bilateral ureteral stents.

","B","Complete uterine prolapse (procidentia) can cause bilateral ureteral obstruction. Correction of the prolapse causes relief of the ureteral obstruction. In this case ،a vaginal pessary to prevent prolapse is the best initial management to allow improvement in renal function and uninterrupted anticoagulant treatment of her phlebitis. Later hysterectomy may be indicated. Neither anterior vesicourethropexy nor anterior vaginal repair will correct uterine prolapse. Cystoscopic manipulation of the upper tracts through an infected bladder will, all too often, lead to pyelonephritis. All patients with advanced uterine prolapse should have upper tract imaging by ultrasound or pyelography. Lesser degrees of uterine procidentia carry little risk of hydronephrosis (2% in one study).

78. A five-year-old boy has had two prior failed attempts to repair his penoscrotal hypospadias. His urethral meatus is widely patent and is located at the penoscrotal junction. The distal urethral plate is fibrotic and scarred, and is associated with a 15 degree ventral curvature. He has minimal excess preputial and penile shaft skin. The next step is:

A. incised plate urethroplasty.
B. buccal mucosa onlay graft and corporal body grafting.
C. buccal mucosa onlay graft and dorsal corporal plication.
D. resection of urethral plate and tubed buccal mucosa graft urethroplasty.
E. resection of urethral plate and first stage buccal mucosa graft to urethral bed.

","E","Patients that have had numerous previous attempts at hypospadias repair often have a scarred and poorly vascularized urethral bed. In these situations, the best chance for success is resection of the scarred bed with a two-stage buccal mucosa urethroplasty. The minimal degree of residual ventral curvature will likely not be functionally significant and will improve with resection of the fibrotic urethral plate. Single-stage tubed buccal grafts have a higher degree a failure than a two-stage technique.

79. A 34-year-old woman with multiple sclerosis continues to have significant urinary incontinence despite maximal antimuscarinics. Two weeks after intradetrusor injection of 200 units of onabotulinumtoxinA, she complains of worsening frequency, urgency and urinary incontinence. The next step is:

A. PVR.
B. cystoscopy.
C. urodynamics.
D. empiric antibiotic therapy.
E. reinject 100 units of onabotulinumtoxinA.

","A","This patient is likely experiencing worsening of symptoms due to incomplete bladder emptying .It appears that approximately 25% of patients with a neurogenic bladder who are not catheterizing at baseline will require CIC after injection of 200 units of onabotulinumtoxinA. UTI could cause her worsening symptoms; however, this would be more likely if the patient is already performing catheterization. Urodynamics and cystoscopy would not be helpful in the immediate postoperative period. If a patient requires reinjection this should be done at least two to three months after the initial injection. Recent studies suggest that the 200 U dose is adequate and a higher dose is not beneficial.

80. Aldosterone production is primarily:

A. a function of the zona fasciculata.
B. increased by atrial natriuretic factor.
C. decreased in renal hypoperfusion.
D. mediated by angiotensin II.
E. increased with sodium loading.

","D","Aldosterone levels are primarily regulated by angiotensin II through the renin-angiotensin-aldosterone system and directly by serum potassium levels. Increased sodium decreases aldosterone. Aldosterone is produced in the zona glomerulosa and not under direct control of ACTH. Renal hypoperfusion will increase aldosterone production.

81. A 14-year-old boy has a painless mass above the right testis. Radical orchiectomy is performed. Pathology reveals a completely resected paratesticular rhabdomyosarcoma. His abdominal CT scan is normal. The next step is:

A. repeat CT scan in three months.
B. adjuvant chemotherapy with doxorubicin and alkylating agents.
C. retroperitoneal radiation.
D. ipsilateral RPLND.
E. bilateral RPLND.

","D","There is a significant rate of false negative imaging of the retroperitoneum on CT scan and microscopic disease may be present in patients with paratesticular rhabdomyosarcoma. Boys ten years of age or younger can be treated with chemotherapy alone. Boys over ten years of age should undergo ipsilateral RPLND since 50% will have microscopic disease. Bilateral RPLND is more morbid and does not improve survival over unilateral surgery. If the lymph nodes are positive for metastasis, the patient will require radiation therapy to the retroperitoneum in addition to chemotherapy.

82. A 46-year-old-man has a sustained erection for 72 hours. His erection has persisted despite irrigation with dilute phenylephrine solution through multiple glanular punctures and a subsequent corporal-cavernosal shunt. One day later, he continues to have a rigid penis. The best treatment is:

A. oral terbutaline.
B. oral bicalutamide.
C. corporal-glanular shunt.
D. bilateral T-shunt.
E. immediate prosthesis implantation.

","E","Priapism lasting longer than 36 hours recalcitrant to multiple attempts at irrigation as well as shunting procedures, is best treated with immediate penile prosthesis implantation. While immediate implantation carries a greater risk of infection and erosion, it preserves penile length and makes prosthesis implantation easier. In this severe case of ischemic priapism, oral therapies are not indicated and he has already failed a proximal shunting procedure. A T-shunt is another form of a distal corporal-glanular shunt. A repeat proximal shunt would not be unreasonable in this individual ،but would have a low chance of success and will likely be associated with significant penile shortening and fibrosis.

83. A 68-year-old woman has nocturia x3, persistent suprapubic pain, urgency and daytime frequency after her third BCG instillation for recurrent stage Ta bladder cancer. A urinalysis reveals 5-10 RBC and 10-20 WBC/hpf. A urine culture is negative. The next step is:

A. space remaining treatments two weeks apart.
B. ciprofloxacin.
C. decrease weekly intravesical dose of BCG by 50 percent.
D. isoniazid therapy with BCG treatments.
E. oxybutynin.

","E","BCG cystitis is a common side effect of BCG therapy. A possible bacterial infection should also always be considered. Quinolone antibiotics are not indicated with a negative urine culture and may have a negative effect on BCG therapy as it is partially tuberculocidal. Similarly, antitubercular medications may abrogate the effectiveness of BCG and add the risk of hepatotoxicity. A decrease in dose intensity may hamper therapeutic efficacy. The patient's symptoms are mild to moderate and are best treated symptomatically with an anti-spasmodic agent during the course of therapy.

84. Prenatal ultrasound in a 22-week male fetus shows bilateral hydroureteronephrosis. The most important parameter(s) predictive of postnatal renal outcome is(are):

A. the anterior-posterior diameter of the renal pelvis.
B. renal parenchymal echogenicity.
C. the degree of parenchymal thinning.
D. the presence of a thick walled bladder and a dilated proximal urethra.
E. the presence of oligohydramnios and renal cortical cysts.

","E","The most reliable indicators of postnatal renal function are the presence or absence of oligohydramnios and renal cortical cysts. Severe oligohydramnios and the presence of renal cortical cysts predict a poor prognosis for postnatal renal function. The anterior-posterior (AP) diameter of the renal pelvis is somewhat predictive of the likelihood of postnatal surgical intervention, but not predictive of postnatal renal function. An enlarged, thick-walled bladder with a dilated proximal urethra indicates bladder outlet obstruction but does not indicate the outcome of renal function .Similar to the AP diameter, the degree of parenchymal thinning is helpful in appreciating the severity of blockage and the likelihood for the need to intervene. Increased renal parenchymal echogenicity may, at times, be associated with impaired renal development and function, but in the absence of cortical cysts is unreliable.

85. A man with a BMI of 35 (normal 18.5-24.9) complains of left flank and hip pain after undergoing laparoscopic right nephrectomy in the lateral position. The surgery was challenging and required use of the kidney rest for an extended period of time .Postoperatively, he appears to have brownish-red urine. Urine dip stick is 3+ for blood but no RBC os seen microscopically. The next step is:

A. observation.
B. nephrology consultation.
C. I.V. hydration and alkalinization.
D. radiographic imaging of the hip.
E. initiation of patient-controlled anesthesia.

","C","This patient likely has rhabdomyolysis. The diagnosis is made by measurement of serum creatine phosphokinase (CPK) or a spot test for urine myoglobin. Risk factors for this at the time of laparoscopic surgery include a BMI of 25 or greater, male gender, prolonged operative time, full-table flexion and prolonged use of the kidney rest. Prevention is essential and includes minimizing the use of the kidney rest and intra-operative hypotension. Brownish-red urine suggestive of the hematuria may be noted in patients with rhabdomyolysis, however microscopic assessment of the urine will not show RBCs. Treatment at this time should be hydration and alkalinization to minimize the risk of renal failure. Renal function should be monitored. The need for transient dialysis occurs in a minority of patients so nephrology consultation may not be necessary. Radiographs of the hip are not indicated as it is unlikely that an injury to the bony pelvis would occur during a nephrectomy leading to these symptoms.

86. A 50-year-old man has a large right renal mass with tumor thrombus extending into the atrium. Under hypothermia and circulatory arrest, he undergoes nephrectomy with removal of the tumor thrombus. The most frequent significant complication is:

A. hepatic dysfunction.
B. pulmonary air embolus.
C. central nervous system deficit.
D. coagulopathy and hemorrhage.
E. tumor emboli.

","D","Hypothermia and circulatory arrest is the treatment of choice for a renal tumor with this level of cephalad extension. This technique has several potential complications such as CNS or hepatic damage yet the most common difficulty associated with this technique is hemorrhage associated with platelet and clotting factor dysfunction. Tumor emboli can occur but are relatively uncommon. Utilization of cardiopulmonary bypass limits the possibility of embolic events.

87. A patient taking chronic thiazide diuretics undergoes nephrectomy. After surgery, serum K is 3.0 mEq/l despite adequate fluid replacement. She is normotensive and alert. Attempts to restore her serum K level are hampered by:

A. adrenal insufficiency.
B. glomerular hyperfiltration.
C. normal magnesium levels.
D. intracellular shifting of potassium.
E. tubular dysfunction.

","D","There is no evidence of adrenal insufficiency. Low magnesium levels can contribute to hypokalemia. There is no evidence that thiazides permanently damage the kidneys ability to handle potassium. The glomerulus does not play an important role in potassium homeostasis. When administering potassium for hypokalemia the rise in serum potassium is blunted because about 80% of the potassium enters the intracellular space.

88. Patients with von-Hippel Lindau disease most frequently have:

A. renal angiomyolipoma.
B. cafe-au-lait spots.
C. glioblastomas.
D. thyroid carcinoma.
E. retinal angiomas.

","E","Patients with von-Hippel Lindau disease may have hemangioblastomas of the cerebellum, renal cell carcinomas, and cystadenomas of the epididymis. The diagnosis, however, can often be made most easily with inspection of the retina with identification of angiomas. Renal angiomyolipomas are commonly seen in tuberous sclerosis complex . Thyroid carcinoma can be seen more commonly in patients with multiple endocrine neoplasia syndrome. Cafe-au-lait spots are pathognomonic of neurofibromatosis.

89. An 11-year-old boy with a history of a PUV develops hypertension and incontinence. Over the past six months, his creatinine has increased from 1.2 to 2.8 mg/dl and his BUN from 28 to 45 mg/dl. Ultrasound shows increased hydroureteronephrosis and a large PVR. The next step is:

A. initiate transplant evaluation.
B. urethral catheter drainage.
C. alpha-blocker therapy.
D. antimuscarinics.
E. desmopressin.

","B","This boy is developing progressive renal insufficiency due to multiple factors including increased urine output from tubular injury and bladder decompensation. In this patient with an acute elevation in creatinine and hypertension, temporary decompression of the bladder to assess potential recovery of renal function should be performed. Videourodynamics to assess bladder function would be the next step in guiding appropriate therapy. Treatment options include CIC with nighttime bladder drainage, with or without antimuscarinics. Alpha-blocker therapy promotes relaxation of the internal urethral sphincter, but has not been consistently successful in these patients. Desmopressin may be indicated in the future following nephrology consultation.

90. In the management of advanced bladder cancer the substitution of carboplatin for cisplatin in a multidrug regimen has been shown to:

A. not affect outcome.
B. increase renal toxicity.
C. improve survival.
D. decrease response rate.
E. increase duration of therapy.

","D","In a meta-analysis of four randomized trials in 286 patients, Galsky and colleagues have concluded that the substitution of carboplatin for cisplatin resulted in a statistically significant (three fold decrease) in the probability of achieving a complete response and a significant decrease in the overall response rate. No significant effect on survival could be analyzed and in general the renal safety profile is improved with the use of carboplatin. The duration of therapy is not affected by the substitution of carboplatin.

91. A 52-year-old man with renal insufficiency has decreased libido and progressive erectile dysfunction. He has a spot serum prolactin level of 220 ng/ml (normal 5-20 ng/ml). The next step is:

A. measure serum testosterone.
B. measure FSH and LH.
C. brain CT.
D. nephrology consult.
E. ophthalmology consult.

","E","Elevated prolactin levels can cause infertility and sexual dysfunction by decreasing the production of testosterone. Mildly elevated levels (< 50ng/ml) can be seen with stress and renal insufficiency. Persistently high levels of serum prolactin are suggestive of a pituitary adenoma and need to be evaluated with a careful measurement of visual fields and an MRI of the pituitary. This patient has levels consistent with a pituitary adenoma and serum testosterone, FSH and LH will not help make the diagnosis. While he may benefit from the care of a nephrologist, it will not direct the diagnosis and treatment of a pituitary adenoma. CT is not specific enough for an evaluation of the pituitary and the best choice is an ophthalmology consult for careful visual field testing and an MRI of the pituitary.

92. A 75-year-old man has severe bleeding from radiation cystitis requiring transfusion. Cystogram reveals no reflux. Previous therapeutic measures have failed including fulguration, clot evacuation, and irrigations with silver nitrate and 1%25 alum. The next step in management is:

A. ileal loop urinary diversion.
B. instillation of 10% formalin.
C. instillation of 5% formaldehyde.
D. instillation of 5% formalin.
E. internal iliac artery embolization.

","D","Formaldehyde is a 37% solution of formaldehyde gas dissolved in water and should not be used intravesically. Formalin solution is made up of 1-10% formaldehyde diluted with normal saline and has been given in bladder instillations to control hemorrhage from advanced bladder tumors or radiation cystitis. Formalin solution is exceedingly irritating to the bladder and, thus, requires general or regional anesthesia. Because a 10% formalin solution may cause fibrosis and obstruction of the ureteral orifices, formalin instillation should begin with a 1% solution and be repeated with a 5% and then a 10% solution, if necessary. Many people begin with a 5% solution if other measures (i.e., silver nitrate and 1% alum) have failed. A cystogram should be performed before instillation to rule out vesicoureteral reflux. If reflux is present, Fogarty catheters should be passed up both ureters, and the patient should be tilted into the head-up position to protect the upper tracts from the toxic effects of formalin. Selective internal iliac arterial embolization is more invasive and should be reserved for patients that fail formalin instillation.

93. A 56-year-old woman with recurrent, symptomatic stress urinary incontinence desires treatment. She had a prior midurethral synthetic sling ten years prior that worked well until recently. Examination reveals loss of urine with cough and minimal urethral hypermobility. Urinalysis is normal. The next best step is:

A. urethral bulking agent.
B. transobturator transvaginal tape sling.
C. retropubic midurethral sling.
D. retropubic bladder neck suspension.
E. artificial urinary sphincter.

","C","A repeat midurethral synthetic sling is an appropriate option for a patient with recurrent stress urinary incontinence. Cure rates for redo patients appear to be higher for the retropubic compared to the transobturator approach. This is likely due to a higher rate of intrinsic sphincter dysfunction in patients requiring repeat surgery. Urethral bulking agents would be less likely to lead to a long-term resolution of this patient's symptoms. Placement of an autologous fascial sling would also be a viable option for this patient. A retropubic bladder neck suspension is an inferior procedure to a retropubic transvaginal tape or to an autologous sling. Placement of an artificial urinary sphincter would not be indicated for this patient.

94. A ten-year-old girl with a history of bilateral high grade VUR was treated with bilateral cross-trigonal ureteral reimplantation surgery at two years of age. She is evaluated for persistent gross hematuria following treatment of a UTI. Cystoscopy and bladder mass resection demonstrates nephrogenic adenomas. The next step is:

A. reassurance.
B. antibiotic suppression.
C. intravesical BCG.
D. laser ablation.
E. partial cystectomy.

","B","Nephrogenic adenoma is a rare benign metaplastic response of urothelium to tissue injury. Most nephrogenic adenomas occur after an inciting event such as surgery, trauma, infection, and immunosuppression or in response to calculi. The adenomas will develop months to years after a precipitating event and will usually occur within the bladder but may occur on any urothelial surface including transposed bladder mucosal grafts. The main presentation is hematuria and irritative voiding symptoms, but patients may also present with obstructive symptoms or be diagnosed incidentally .The endoscopic appearance is that of a papillary exophytic lesion resembling a low-grade urothelial carcinoma. On histological evaluation, nephrogenic adenoma appear as subepithelial tubular structures similar to Henle's loops. Although at one time these lesions were considered to be premalignant in nature, recent studies have been unable to establish a relationship between nephrogenic adenomas and the subsequent development of malignancy. Even though there is no evidence of malignant potential, transurethral resection is recommended together with long-term antibiotic prophylaxis for at least one year after resection. Prolonged antibiotic therapy is suggested due to the frequent finding of UTI as an associated or causative factor. It is controversial regarding whether patients with nephrogenic adenomas should undergo surveillance cystoscopy. Although there is high incidence of recurrence (30-40%) it is feared that repeated cystoscopic evaluations could further traumatize the bladder urothelium leading to an increased incidence of recurrence. Since nephrogenic adenomas are now known to be a benign condition most authorities recommend cystoscopy, only if recurrent gross hematuria and/or irritative or obstructive voiding symptoms develop.

95. A 43-year-old paraplegic man with a neurogenic bladder has gross hematuria. A cystogram shows bilateral grade 2 VUR and a 1 cm papillary filling defect in the mid-right ureter. Cystoscopy shows patulous ureteral orifices, but no other abnormalities .Complete ureteroscopic resection of the tumor reveals a low grade non-invasive urothelial carcinoma. The serum creatinine is 1.0 mg/dl. The best management is:

A. surveillance with ureteroscopy.
B. nephroureterectomy.
C. partial ureterectomy.
D. ureterectomy and ileal ureter.
E. intravesical BCG.

","A","This patient is an ideal candidate for endourologic management of an upper tract tumor. The patulous ureteral orifices will allow easy passage of the ureteroscope for surveillance. The surgical options listed are unnecessary for a completely resected tumor. Intravesical BCG is not indicated for a first-time low grade tumor.

96. An eight-month-old uncircumcised boy is treated for a febrile UTI. Ultrasound shows a right multicystic dysplastic kidney and a normal left kidney. VCUG shows left grade 3 VUR. DMSA scan shows non-function of the right kidney and a left upper pole cortical defect. The next step is prophylactic antibiotics and:

A. observation.
B. circumcision.
C. left antireflux surgery.
D. right nephrectomy.
E. left antireflux surgery and right nephrectomy.

","A","Up to 25% of children with multicystic dysplastic kidneys will have contralateral vesicoureteral reflux. The scan suggests pyelonephritis in the left upper pole. There is no need to remove the right multicystic dysplastic kidney at this time. Infection in a multicystic dysplastic kidney is extremely rare and not seen in this scenario. In this age child, there is still a good chance the reflux will resolve spontaneously. Prophylactic antibiotics and observation is the best treatment. In the absence of breakthrough infections, a circumcision is not needed.

97. A 23-year-old man had a successful kidney transplant two weeks ago. He has significant pain below his incision without any leg weakness. The most likely diagnosis is:

A. postoperative pain.
B. addictive behavior.
C. lateral cutaneous nerve injury.
D. genitofemoral nerve entrapment.
E. femoral nerve damage.

","D","Nerve injury can be seen after transplantation or a psoas hitch. The genitofemoral nerve arises from the L1-2 ventral primary rami and at the level of L3-4, the nerve pierces the anterior surface of the psoas major muscle and descends past the ureter. It then splits into the genital and femoral branches near the inguinal ligament. The surgeon must not mistake this nerve for a lymphatic vessel as it sometimes crosses the external iliac artery. This nerve supplies the cremaster muscle, spermatic cord, scrotum, and thigh in males. Incisional pain can be common after kidney transplantation but after 2 weeks, postoperative pain usually subsides. Although pain to very light touch can suggests addictive behavior, the entrapped genitofemoral nerve can indeed present in this manner. More often, the pain may be worse with internal or external rotation of the hip and prolonged walking. Lateral cutaneous nerve injury presents with anterior and lateral thigh paraesthesia symptoms of burning and tingling that increase with standing, walking, or hip extension. Patients with femoral nerve damage complain of difficulty in walking and sometimes knee buckling depending on the severity of the nerve injury.

98. A 55-year-old woman undergoes right radical nephrectomy and inferior vena cava thrombectomy for RCC. There is no evidence of metastatic disease. The prognostic factor most predictive of cancer-free survival is:

A. tumor stage.
B. tumor grade.
C. size of caval thrombus.
D. tumor size.
E. mutant p53 suppressor gene.

","A","Important prognostic factors for RCC include specific clinical signs or symptoms such as anemia, hematuria and weight loss; tumor-related factors such as grade and histology; and various laboratory findings such as hypercalcemia. Although an integrative approach utilizing nomograms and risk tables combining a variety of factors have proven to be powerful analyses tools, the local tumor stage remains the most important single prognostic factor for RCC. The cephalad extent of tumor thrombus has been associated with outcome, since a thrombus above the diaphragm increases the stage. However, the absolute size of thrombus does not correlate to outcome. Presence or absence of p53 mutation is not prognostic in RCC.

99. A newborn boy with bilateral hydronephrosis has PUV, left sided grade 5 VUR, and a large bladder diverticulum on VCUG. After successful resection of valves, left hydronephrosis persists. The next step is prophylactic antibiotics and:

A. observation.
B. vesicostomy.
C. left cutaneous ureterostomy.
D. left anti-reflux surgery.
E. left nephroureterectomy and bladder diverticulectomy.

","A","Hydronephrosis is often persistent after resection of a PUV, and does not necessarily suggest failure of therapy. The hydronephrosis may also be due to persistent left-sided VUR immediately following successful valve resection. Both hydronephrosis and VUR may resolve in approximately 50% of boys following valve resection. This boy should be given time along with prophylactic antibiotics and re-evaluation in 12-18 months. In the absence of persistent urinary infection, anti-reflux surgery or removal of the left system and bladder diverticulum are not indicated, and might result in loss of system compliance. Assessment of renal function using either a MAG-3 with Lasix or DMSA renal scan would be necessary before considering removal of any kidney. Urinary diversion at the bladder or supravesical level is not indicated in this boy.

100. A 55-year-old man with metastatic RCC to the brain is confused and has one short generalized seizure. His serum sodium is 110 mEq/l. The next step is:

A. total fluid restriction to 2 l/day.
B. I.V. normal saline at 1 ml/kg/hr.
C. I.V. hypertonic saline at 1 ml/kg/hr.
D. lithium 1200 mg daily.
E. demeclocycline 600 mg daily.

","C","SIADH is caused primarily by release of ADH from brain infections, neoplasms, drugs, or surgery. The treatment of symptomatic hyponatremia from SIADH is fluid restriction and replenishment of sodium. Fluid restriction alone is not adequate in the face of a seizure. The indications for hypertonic saline should be those patients who have neurologic sequelae as noted in this scenario. Correction should raise the sodium no more than 2 mEq/l/hr or 25 mEq/l/48 hours to minimize the risk of central pontine myelinolysis. Lithium and demeclocycline are antagonists of ADH and used for more chronic conditions without concurrent neurologic symptoms. Correction of the sodium deficit is the appropriate next step.

101. An eight-year-old boy was treated for lipomyelomeningocele at birth. He is on CIC every four hours and oxybutynin 5 mg BID. He develops new incontinence. The next step is:

A. urodynamics.
B. MRI scan of spine.
C. increase CIC frequency.
D. increase antimuscarinics.
E. start imipramine.

","A","This patient should undergo urodynamic evaluation to assess the etiology of the incontinence. MRI scan of the spine would be indicated if the urodynamic study shows new abnormal findings, or new onset of lower extremity weakness or other alterations on neurologic exam. Implementing any additional treatment at this time without identifying the cause for the incontinence would be premature.

102. A two-day-old, 4.5 kg girl has gross hematuria. A right flank mass is palpable. CBC shows thrombocytopenia. The most likely diagnosis is:

A. renal vein thrombosis.
B. renal artery thrombosis.
C. Henoch-Schonlein purpura.
D. hemolytic uremic syndrome.
E. congenital mesoblastic nephroma.

","A","This is a large infant, which may be associated with maternal diabetes. That history and the abdominal mass make the diagnosis of renal vein thrombosis most likely. The thrombocytopenia is characteristic. Renal artery thrombosis is usually associated with an indwelling umbilical artery catheter, and can result in a mass and hematuria. Congenital mesoblastic nephroma is the most common solid renal mass in an infant but is not usually associated with hematuria or thrombocytopenia. Henoch-Schonlein purpura is a systemic vasculitis that commonly presents at four to six years of age. The common features are palpable purpuric rash, abdominal pain with gastrointestinal bleeding, and arthritis. Hemolytic uremic syndrome is defined by the triad of microangiopathic hemolytic anemia, thrombocytopenia and acute renal failure that typically occurs after enterocolitis with E. coli (O157:H7).

103. A 68-year-old man with ESRD has been on dialysis for ten years. He has a malleable penile prosthesis and his caregivers notice a firm, black, necrotic lesion on his glans. He has similar lesions on his fingers and toes. The best treatment is:

A. observation and support.
B. oral antibiotics for six weeks.
C. I.V. antibiotics for six weeks.
D. biopsy of lesion.
E. removal of prosthesis.

","A","This patient has metastatic calciphylaxis of the vessels (dry gangrene) in his digits and glans. This is seen in patients with ESRD and is associated with a high mortality rate. Most of

these patients will die of their renal disease within six months. The characteristic lesions show microscopic calcification in the arterioles and capillaries which leads to dry necrosis. Antibiotics are not helpful and biopsies can be harmful as these lesions will not heal well due to their poor blood supply. Removal of the prosthesis would only be indicated if there was subsequent erosion or penile infection. This patient should continue with observation, support and wound care as needed.

104. A 23-year-old man develops chylous ascites after RPLND. He is initially managed with a medium chain triglyceride diet, and for the last two weeks, with TPN. He still requires periodic paracentesis four weeks postoperatively. The next step is:

A. continue current management.
B. add somatostatin.
C. laparoscopic ligation of the source.
D. open surgical ligation of the source.
E. peritoneovenous shunt.

","B","After making the patient NPO and starting TPN, the next step is the administration of subcutaneous or I.V. somatostatin. Recent reports have shown a beneficial effect leading to drying up of lymphatic fistulas in this setting. Somatostatin works by decreasing the absorption of fats, inhibiting gastric, intestinal, and pancreatic secretions, and inhibiting motor activity of the intestines. The net effect is reduced flow within the major lymphatic channels, and reduced leakage from the fistula site. Somatostatin is thus recommended prior to proceeding with more invasive measures.

105. A 37-year-old woman with a continent cutaneous urinary diversion becomes febrile and develops mental status changes and marked hepatic dysfunction. Previously, her hepatic function had been normal. In addition to prompt urinary drainage and systemic antibiotics, the next step is:

A. lactulose.
B. Vitamin B12.
C. sodium bicarbonate.
D. nicotinic acid.
E. thiamine and folic acid.

","A","Urinary ammonium excreted by the kidneys is reabsorbed by the intestinal segment, and then returned to the liver via the portal circulation. The liver metabolizes ammonium to urea via the ornithine cycle. The liver usually adapts to the excess ammonia in the portal circulation without difficulty and rapidly metabolizes it. In the setting of hepatic dysfunction, the hepatic reserve for ammonium metabolism may be exceeded, resulting in the complication of an ammoniagenic coma. The syndrome, however, also has been described in patients with normal hepatic function. Systemic bacteremia, with endotoxin production, inhibits hepatic function and may precipitate this clinical entity. Urinary tract infections with urea-splitting organisms may also overload the ability of the liver to clear the ammonia. If this syndrome occurs in a patient suspected of having near normal hepatic function, systemic bacteremia or urinary obstruction should be suspected. Prompt urinary drainage with treatment of the offending urinary pathogens along with systemic antibiotics and the administration of oral neomycin or lactulose to reduce absorption of ammonia in the gastrointestinal tract are the key components to patient management. There is no indication for the use of Vitamin B12, sodium bicarbonate, nicotinic acid, thiamine and folic acid in this clinical setting.

106. Persistent or recurrent difficulty to allow vaginal entry of a penis, finger, or other object, despite the woman's desire to participate is consistent with the diagnosis of:

A. vaginismus.
B. persistent sexual arousal disorder.
C. dyspareunia.
D. sexual aversion disorder.
E. genital arousal disorder.

","A","Sexual dysfunction in women is complicated in that many of the disorders coexist and isolated disorders are uncommon. Definitions frequently change or are not universally agreed upon. In the "Revised Definitions for Female Sexual Dysfunction from the Second International Consensus of Sexual Medicine," vaginismus is the persistent difficulty to allow entry of an object into the vagina despite the desire of the woman to participate. Dyspareunia on the other hand is persistent or recurrent pain with attempted penile-vaginal intercourse. Persistent sexual arousal disorder, sexual aversion disorder and objective arousal disorder are not primarily associated with the difficulty to insert an object into the vagina. Genital arousal disorder consists of complaints of impaired genital sexual arousal, which may include minimal vulvar swelling or vaginal lubrication from any type of sexual stimulation and reduced sexual sensations from caressing genitalia. However ،subjective sexual excitement still occurs with nongenital sexual stimuli. In persistent sexual arousal disorder, the patient has spontaneous, intrusive, and unwanted genital arousal in the absence of sexual interest and desire. Arousal is unrelieved by orgasms and the feelings of arousal persist for hours or days. Extreme anxiety or disgust at the anticipation of or attempt at any sexual activity is sexual aversion disorder.

107. A 59-year-old man undergoes TRUS biopsy with a PSA of 4.5 ng/ml and a normal DRE. The biopsy reveals BPH and nine months later his PSA has risen to 5 ng/ml and he undergoes a PCA3 urine test. The PCA3 score is 99 (low risk < 35). The next step is :

A. 5-alpha reductase inhibitor.
B. one month of ciprofloxacin and repeat PCA3.
C. free to total PSA ratio.
D. prostate MRI.
E. repeat TRUS biopsy.

","E","The PCA3 urine test is designed to detect the mRNA signal from the DD3 gene which is specific to prostate cancer. This test has now been validated in multiple prospective studies the largest of which was the REDUCE clinical trial. In this study PCA3 scores were measured in 1,072 subjects with a negative prior TRUS biopsy and the results were more closely correlated to the results of the second biopsy than PSA alone or free to total PSA ratio. The higher the level of the PCA3 score the higher the risk of a positive biopsy and a score of under 35 is considered low risk. Therefore a repeat prostate biopsy is warranted in this patient. PCA3 is now FDA-approved for the assessment of patients with a prior negative prostate biopsy. PCA3 is not affected by infection, prostate volume, or the use of 5-alpha reductase inhibitors.

108. An 11-year-old boy with spina bifida is scheduled for bladder augmentation and implantation of an artificial urinary sphincter. Infection or erosion are more common if sphincter implantation is performed:

A. prior to bladder augmentation.
B. following bladder augmentation.
C. simultaneous with augmentation.
D. with sigmoid enterocystoplasty.
E. in an area of previous bladder neck surgery.

","E","The best treatment for a patient with low bladder compliance, small capacity, and sphincteric incontinence is the combined use of bladder augmentation and increased bladder outlet resistance. When an artificial urinary sphincter is used in conjunction with augmentation of the bladder, the timing of the two procedures does not appear to affect the outcome. More important factors are good bowel preparation, intravenous antibiotics, sterility of the urine, and meticulous surgical technique to avoid entering the previously augmented bladder during sphincter implantation which may predispose to infection and sphincter erosion. Patients who have undergone prior incontinence procedures are also at increased risk for sphincter erosion.

109. The production of sex hormone binding globulin (SHBG) is increased by:

A. hypothyroidism.
B. hyperthyroidism.
C. insulin.
D. nephrotic syndrome.
E. progestins.

","B","Sexual dysfunction and infertility can on rare occasions be caused by thyroid dysfunction. Hyperthyroidism/thyrotoxicosis can elevate the serum levels of sex hormone binding globulin (SHBG) and subsequently lower circulating free testosterone. Hypothyroidism can have the opposite effect (lower SHBG) as can insulin administration, glucocorticoid excess, hepatic disease and nephrotic syndrome. Estrogen can increase SHBG production and progestins can lower it.

110. The primary goal of bowel detubularization at the time of neobladder construction is to:

A. recreate the shape of the native bladder.
B. provide more efficient neobladder emptying.
C. reduce lumen pressure.
D. reduce vesicoureteral reflux.
E. reduce urinary contact time.

","C","Early studies of orthotopic reconstruction by Camey and others demonstrated that while continence can be achieved utilizing a tubularized segment of bowel as a urinary reservoir, upper tract deterioration inevitably occurred due to high reservoir pressure. In part, the pressure in such segments is due to the continued organized bowel peristalsis, and the reduced diameter of the lumen. The observation that reservoir pressure is lowered by increasing the internal radius of the reservoir is based upon Lapace's law that mural tension is equivalent to pressure times radius cubed. While the increased radius achieved by detubularization and folding of the bowel also results in increased reservoir capacity, the

primary goal of detubularization is reduction in pressure through reduction of organized peristalsis and wall tension. Although this may indirectly lead to reduced ureteral reflux, it is not the primary reason for bowel detubularization.

111. Berry aneurysms of the circle of Willis are most frequently associated with:

A. renal aneurysms.
B. autosomal dominant polycystic kidneys.
C. autosomal recessive polycystic kidneys.
D. horseshoe kidney.
E. multicystic dysplastic kidneys.

","B","Ten percent of patients with autosomal dominant polycystic kidney disease have berry aneurysms, and subarachnoid hemorrhage can be a lethal consequence. The high incidence of hypertension with autosomal polycystic kidney disease may contribute to the frequency of bleeding from the berry aneurysm. There is no association between renal aneurysms and berry aneurysms. Multicystic dysplastic kidneys have a slight association with hypertension but no extrarenal manifestations otherwise. Horseshoe kidney has a higher incidence of UPJ obstruction and Wilms' tumor, but is not associated with berry aneurysms. Autosomal recessive polycystic kidney disease is associated with liver failure, but has no known association with berry aneurysms.

112. A 52-year-old man in good health has a three year history of dorsal penile curvature. His angulation is 80 degrees and has been stable without pain for over a year. He has good erections with sildenafil but cannot penetrate due to the curvature. The best treatment is:

A. oral colchicine.
B. topical verapamil.
C. corporal plication.
D. plaque incision and graft.
E. modeling and placement of inflatable penile prosthesis.

","D","This patient has demonstrated a stable plaque in Peyronie's disease and is ready for surgical correction. Medical therapy with colchicine may be useful in the acute phase and will decrease penile pain, however it has little to no proven benefit over placebo in preventing curvature and is associated with significant GI side effects. It would not be effective in this clinical situation. Topical verapamil has not been adequately evaluated and would most likely not be effective with this degree of curvature. Plication would require multiple plicating sutures and would severely shorten the penis with this degree of curvature. Plication procedures are usually not recommended if the penile curvature is > 60 degrees due to significant shortening of the penis. As he gets excellent erections, a prosthesis is not yet indicated.

113. The risk factor associated with the highest chance for developing a secondary malignancy and/or cardiovascular disease in patients treated for testis cancer is:

A. surveillance imaging.
B. smoking.
C. BEP chemotherapy.
D. subdiaphragmatic and mediastinal radiation therapy.
E. cisplatin, vinblastine, bleomycin (PVB) chemotherapy.

","D","In a multivariate analysis, combined subdiaphragmatic and mediastinal radiation has a Hazard's Ratio (HR) of 3.7 for secondary malignancy and/or cardiovascular disease; chemotherapy also increased the risk (HR 1.9), but there is no difference between the chemotherapy regimens. Smoking increased risk 1.7 fold. There is no increased risk of secondary malignancy with surgery. Surveillance imaging is a risk factor for developing secondary malignancy, but the magnitude of the risk is much lower than radiation therapy.

114. The ductuli efferentes of the testis enter the:

A. seminiferous tubules.
B. caput epididymis.
C. cauda epididymis.
D. vas deferens.
E. rete testis.

","B","Seminiferous tubules, organized into 200-300 conical tubules, drain into 20-30 tubuli recti which enter the rete testis, a network of ducts in the testicular mediastinum. At the upper end of the mediastinum, the ductuli efferentes emerge from the testis to enter the head (caput) of the epididymis. The cauda epididymis is the most distal portion of this organ from the testis.

115. A 42-year-old man sustains a high velocity pelvic gunshot wound with no obvious ureteral injury at exploration. Two days later during a second look operation for bleeding, a minor distal ureteral contusion is identified. Intravenous indigo carmine does not reveal a urine leak. The next step is:

A. observation.
B. cystoscopy and stent placement.
C. percutaneous nephrostomy.
D. ureteroneocystostomy.
E. debridement and ureteroureterostomy.

","B","The patient has a ureteral contusion to the distal ureter following a gunshot wound. There is no evidence of devitalized tissue or a urine leak. Cystoscopy and ureteral stent placement is the best option for a minor contusion. Ureteral reimplant is the best treatment option if a large contusion or devitalized tissue is identified. Ureteroureterostomy of the distal ureter is never indicated. Percutaneous nephrostomy would divert the urine yet would not stent the ureter which may lead to stricture formation. Observation is not indicated as the ureter may become obstructed from the contusion.

116. A 56-year-old woman three years after a radical cystectomy and continent cutaneous diversion has abdominal pain over the pouch and explosive leakage of urine despite regular catheterization. The next step is:

A. placement of indwelling urinary catheter.
B. pouchoscopy.
C. urine culture and empiric antibiotic therapy.
D. CT pouch-o-gram.
E. surgical revision of the catheterizable stoma.

","C","The clinical presentation of abdominal pain in the area of a continent cutaneous diversion and explosive urinary leakage from the stoma (as opposed to dribbling leakage) is consistent with pouchitis. While asymptomatic bacteruria is common in patients who have undergone continent cutaneous diversion and does not usually require any treatment, symptomatic pouchitis should be treated. The explosive nature of the incontinence is related to hypercontractility of the bowel in the face of infection. Short courses of antibiotics (less than ten days) are not usually successful to clear the infection, presumably due the larger amounts of mucus and sediment seen in intestinal pouches. CT cystogram of the pouch would be useful if rupture of the pouch was suspected. However, clinical symptoms in this setting are not consistent with that diagnosis. Placement of an indwelling urinary catheter, while not harmful in this setting, would have no effect on the pouch infection. Surgical revision of the stoma is unwarranted when incontinence is likely due to infection.

117. A nine-year-old girl is struck in the abdomen and right flank by an automobile. She is alert and her vital signs are stable. She has moderate guarding in her right upper quadrant and decreased bowel sounds. Her hematocrit is 33%, and she has blood-tinged urine. A CT scan demonstrates a 4 cm hepatic laceration and hematoma and a 3 cm laceration of the right kidney with minimal contrast extravasation. The next step is:

A. observation.
B. cystoscopy and ureteral stent placement.
C. renal and hepatic arteriography.
D. percutaneous drain placement.
E. abdominal exploration.

","A","In children who sustain blunt abdominal trauma, CT scan can define injuries to the abdominal viscera quite well. Conservative treatment in the hemodynamically stable patient with follow-up CT scan, if needed, will result in reducing the rate of abdominal exploration in the patient with stable visceral injuries to less than 10%25. Cystoscopy and ureteral stent placement in this patient with a grade 3 renal laceration is not indicated ،unless clinical symptoms, such as a prolonged ileus or sepsis should develop. Renal and hepatic arteriography would be indicated if there is decreasing hematocrit with increasing size of hematoma, and may allow for selective embolization of the bleeding vessel(s), potentially eliminating the need for exploration. Surgical exploration with repair of lacerations is not indicated in this stable patient and in some cases may result in disruption of hematoma, bleeding and unnecessary nephrectomy.

118. A 25-year-old woman reports eight afebrile UTIs in the past year. The factor most likely to increase her risk of UTI is:

A. tampon use.
B. parity.
C. douche use.
D. daily bicycle riding.
E. spermicide use.

","E","Studies of risk factors for recurrent UTI demonstrate that spermicide use increases urinary tract infections by decreasing normal vaginal flora and decreasing vaginal pH. Several studies have demonstrated the other four choices are not common risk factors. Toileting after intercourse, increasing fluid intake and wiping front to back have not been shown to decrease occurrence of UTIs in adult women.

119. A 45-year-old woman undergoes a left adrenalectomy for pheochromocytoma. Three months later, she still has sustained hypertension. The next step is:

A. plasma renin activity.
B. plasma free metanephrine levels.
C. 24-hour urinary cortisol levels.
D. abdominal MRI scan.
E. MIBG scan.

","B","Repeat metabolic testing should be performed after adrenalectomy to document normalization of chromaffin cell function. One of the pitfalls of diagnosing and treating pheochromocytoma is failure to recognize multiple lesions at the time of treatment. It has been estimated that between 10-20% of pheochromocytomas are malignant or multifocal. In a patient who undergoes surgical resection of an adrenal pheochromocytoma but still has persistent unexplained hypertension two to three months after the procedure, residual tumor somewhere else in the body must be considered. While MIBG scan may be helpful in identifying the location of this lesion, the patient should initially have plasma free metanephrine levels measured. If this is normal MIBG scan is not indicated. Similarly, MRI should not be ordered until pheochromocytoma is ruled in or out using less invasive diagnostic testing. Clinical suspicion of primary hyperaldosteronism or Cushing's syndrome is low in this case, so plasma renin activity and 24-hour urinary cortisol levels will not be helpful.

120. If the inferior mesenteric artery is ligated, the artery that maintains blood supply to the rectum is:

A. superior mesenteric.
B. ileocolic.
C. middle sacral.
D. external iliac.
E. hypogastric.

","E","Blood supply to the rectum arises proximally from the superior rectal (hemorrhoidal) artery, inferior mesenteric artery, and distally from the middle (hemorrhoidal) and inferior rectal arteries. When the inferior mesenteric artery is ligated, blood supply to the rectum is maintained by the middle hemorrhoidal artery which is a branch of the posterior division of the hypogastric artery and the inferior rectal artery which is a branch of the internal pudendal artery.

121. A 44-year-old runner experiences the gradual onset of left groin pain. Examination reveals normal genitalia and tenderness over the symphysis pubis. His urinalysis is clear. The most likely cause of his pain is:

A. vasitis.
B. femoral hernia.
C. pubic bone stress fracture.
D. osteitis pubis.
E. osteomyelitis of the pubis.

","D","The patient presents with the symptoms of osteitis pubis in the athlete. It is estimated that osteitis pubis accounts for 6-14% of groin pain in athletes and is thought to be a form of overuse injury. The onset of unilateral or bilateral groin pain is gradual and may be accompanied by pain in the lower abdomen, hip, thigh, or testicle. Acutely painful infectious vasitis without associated epididymitis is exceedingly rare. Femoral hernia may cause groin pain but is not typically associated with pain of the symphysis pubis. Pubic stress fractures do occur but are less common than osteitis pubis in athletes. Osteomyelitis of the pubis has been reported in athletes and must be considered in the differential diagnosis. However, it is much less common than osteitis pubis. Pelvic MRI scan is used to distinguish between osteomyelitis and osteitis pubis. Treatment for osteitis pubis is anti-inflammatory medications and rest.

122. On prostate ultrasound, calcifications within the prostate known as corpora amylacea can be visualized between which zones:

A. transitional and anterior.
B. central and peripheral.
C. transitional and peripheral.
D. central and transitional.
E. central and anterior.

","C","The various zones of the prostate are not always easily distinguished on ultrasound. In glands with large adenoma, the transitional zone can often be distinguished from the anterior zone and the peripheral zone because of its more heterogeneous appearance. In addition, some patients will develop calcifications along the surgical capsule between the transitional zone and the peripheral zone. These calcifications are known as corpora amylacea and can be used on ultrasound to define the boundaries of these two zones.

123. A six-week-old boy has a large, palpable, right abdominal mass. Ultrasonography demonstrates a fluid-filled mass with multiple cystic lucencies. A renal scan shows no uptake of the right kidney and a normal left kidney. He has moderate respiratory distress and an elevated right hemidiaphragm. The most appropriate therapy is:

A. right nephrectomy.
B. percutaneous aspiration of cysts.
C. cystoscopy and right retrograde pyelogram.
D. right pyeloplasty.
E. observation.

","A","The diagnostic findings on ultrasound and renal scan are sufficient to confirm multicystic dysplastic kidney. The absolute indications for removal are few, including hypertension, solid mass, or significant respiratory or gastrointestinal compromise. Aspiration is an option in a premature neonate or a toxic child, but at six weeks of age, nephrectomy is preferred. The lack of renal function eliminates a salvageable UPJ obstruction. Therefore cystoscopy and retrograde pyelogram is unnecessary, and pyeloplasty is not an option.

124. Randomized clinical trials have demonstrated decreased rates of struvite stone growth with the use of:

A. urinary acidification.
B. suppressive antibiotics.
C. acetohydroxamic acid.
D. a low protein diet.
E. citric acid glucono-delta-lactone magnesium carbonate.

","C","Acetohydroxamic acid (AHA, Lithostat (®has been demonstrated in randomized clinical trials to decrease the rate of stone growth in patients with struvite calculi. It is important to note that AHA did not impact the rate of stone recurrence. Urinary acidification has been tested in vitro utilizing L-methionine, but has not been studied in humans. Though recurrence rates are higher (62%) in patients with infected urine compared to sterile urine (12%), the use of suppressive antibiotics to decrease stone growth has not been studied in a clinical trial. A low protein diet, although effective in feline studies, has not been shown to make a difference in human studies. Citric acid glucono-delta-lactone magnesium carbonate (Renacidin (®has been utilized for dissolution therapy of residual fragments.

125. A 51-year-old woman develops bilateral hydronephrosis from benign uretero-enteric strictures, two years after undergoing a radical cystectomy with ileal conduit urinary diversion. The most successful treatment is:

A. antegrade bilateral endoscopic balloon dilatation.
B. antegrade bilateral endoscopic laser incision.
C. retrograde bilateral balloon dilatation.
D. retrograde bilateral endoscopic laser incision.
E. open bilateral surgical revision.

","E","Although short-term success rates (within the first year post treatment) are high with endoscopic treatments, ranging from >60% to 100%, the long term success rates are quite low regardless of approach or endoscopic treatment. The most definitive treatment is open surgical repair.

126. An acutely ill 50-year-old man is in the emergency room. He is unable to give a history. Physical exam reveals severe dehydration. Serum Na is 125 mEq/l, and urinary Na is 8 mEq/l (> 20 mEq/l normal spot urine). The most likely cause of his hyponatremia is:

A. vomiting.
B. diuretic excess.
C. renal disease.
D. congestive heart failure.
E. Addison's disease.

","A","Congestive heart failure is associated with fluid retention. Therefore, a patient with heart failure would not be dehydrated. Renal disease, Addison's disease, and diuretic excess cause hyponatremia by increased urinary excretion of sodium. Of the choices listed, only vomiting would result in hypovolemia, hyponatremia, and a very low concentration of sodium in the urine. Patients who experience excessive vomiting lose fluid and salt. Therefore, they become dehydrated and their kidneys reabsorb almost all of the filtered sodium. Thus, the urinary sodium concentration is low.

127. When performing SWL using sedation, one should anticipate a need for deeper anesthesia if the patient:

A. is a male.
B. is older than 50 years.
C. has a stone projecting over a rib.
D. has never had a prior SWL.
E. has a ureteral calculus.

","C","There is a greater need for supplemental anesthesia during SWL under sedation if the patient is female or young, has a history of anxiety, depression or prior SWL, or has a rib-projected calculus. Pain during SWL has been shown to be less with ureteral calculi when compared to renal calculi.

128. A 66-year-old man has a PSA of 4.1 ng/ml and is diagnosed with a Gleason sum 6 prostate cancer involving less than 5%25 of a single core from a 12-core biopsy. He elects active surveillance. One year later, his PSA is 4.5 ng/ml. The next step is :

A. recheck PSA in three months.
B. recheck PSA in six months.
C. 12-core TRUS-guided prostate biopsy.
D. 24-core TRUS-guided saturation biopsy.
E. MRI.

","C","Active surveillance is an appropriate management strategy for selected men with localized prostate cancer. Patients who elect this approach should have favorable risk tumors, usually consisting of low-volume Gleason sum 6 or less disease. Active surveillance protocols are characterized by close monitoring of PSA kinetics and serial biopsy. Klotz et al from Toronto have suggested that PSAs be measured quarterly for the first two years after diagnosis and then twice annually after that, assuming the PSA is stable. A PSA doubling time of less than three years is considered to be an indication for intervention .They have recommended a 10-12 core biopsy at one year after original diagnosis and then every three to five years after that until age 80. If any Gleason sum 7 or higher disease is noted, this is considered to be an indication for intervention. In this case, the patient is one year removed from his initial diagnosis and a follow-up biopsy is indicated. Reassessment of PSA in three or six months is inappropriate if repeat biopsy is not performed. Saturation biopsy is not indicated in this setting. MRI can be useful in the follow-up for patients, but is not a critical element of active surveillance protocols.

129. A six-week-old boy was born at 27 weeks gestation. His postnatal course has been complicated by respiratory distress, bronchopulmonary dysplasia, and a patent ductus arteriosus. He has required long-term diuretic therapy. A KUB reveals calcifications in the mid and upper abdominal regions consistent with bilateral renal calculi. The most likely mechanism for the formation of the stones is:

A. hypercalciuria.
B. hyperuricosuria.
C. obstructive uropathy.
D. Type I RTA.
E. Type II RTA.

","A","Renal calculi occur in very low birth weight pre-term infants with a history of severe ventilatory problems and bronchopulmonary dysplasia. Many of these infants require long-term treatment with diuretic agents to control heart failure. The diuretic agent used most often is furosemide, which increases the rate of urinary calcium excretion up to ten times normal. Chronic hypercalciuria from furosemide therapy has been shown to result in nephrocalcinosis and calculus formation. Loss of calcium from chronic administration of furosemide may lead to secondary hyperparathyroidism and bone changes. Treatment includes switching from furosemide to thiazides. Other etiologies of stone formation do not occur with increased frequency in premature infants requiring diuretic therapy.

130. A 25-year-old man undergoes excision and primary anastomosis for a 2 cm bulbar urethral stricture. Postoperatively the patient experiences normal erectile function, but difficulty with antegrade ejaculation. The structure most likely injured is the:

A. bulbospongiosus.
B. transverse perineum.
C. bulbocavernosus muscle.
D. corpus cavernosum.
E. corpus spongiosum.

","C","The bulbocavernosus muscle is most responsible for antegrade ejaculation through rhythmic contractions that compress the bulb to expel semen from the urethra. Significant injury or damage to this structure is thought to cause ejaculatory dysfunction. The corpus spongiosum pressurizes and constricts the urethra during ejaculation. The bulbospongiosus, and transverse perineum do not contribute to ejaculation. Injury to the corpus cavernosum could result in erectile dysfunction.

131. A 64-year-old woman undergoes left laparoscopic adrenalectomy for a non-functional 5.5 cm adrenal mass. Three pathologic criteria suggestive of the diagnosis of carcinoma include:

A. a mitotic rate > 5/hpf, absence of clear cytoplasm, and sinusoidal invasion.
B. atypical mitoses, lack of necrosis, and venous invasion.
C. focused growth pattern, high nuclear grade, and most cells have clear cytoplasm.
D. capsular exclusion, sinusoidal exclusion, and atypical mitoses.
E. mitotic rate < 5/hpf, diffuse growth pattern, and capsular invasion.

","A","Distinguishing between adrenal adenoma and carcinoma can be difficult, and large-sized adrenal lesions do not always biologically behave as carcinomas. The Weiss criteria, which includes: high mitotic rate (> 5/hpf ،(atypical mitoses, venous invasion, high nuclear grade (Fuhrman 3-4), absence of cells with clear cytoplasm (< 25% of cells), a diffuse growth pattern (more than one third of tumor), necrosis, sinusoidal invasion, and capsular invasion are often used to distinguish between benign and malignant potential. Three or more of these features are needed for the diagnosis of carcinoma.

132. A four-year-old boy fell from a second story window. On examination, his vital signs are stable, but he has right flank and upper quadrant abdominal tenderness and fullness. He does not have peritoneal signs. Urinalysis is normal. The next step is:

A. observation.
B. abdominal paracentesis.
C. abdominal and renal ultrasound.
D. cystogram.
E. CT urogram.

","E","This boy has suffered a rapid deceleration injury and this mechanism of injury warrants evaluation with imaging. A pedicle injury or complete avulsion of the UPJ are potential injuries. These can both occur without hematuria. Hence, observation would be inappropriate. An abdominal tap for blood would not diagnose a renal injury. An ultrasound would likely not be diagnostic. A cystogram in a trauma patient is only indicated in the presence of gross hematuria or pelvic fracture. CT scan is diagnostic and more likely to identify other potential abdominal injuries.

133. A 60-year-old man who underwent left total hip replacement one year ago is about to undergo SWL of a 1 cm right renal pelvic stone. Appropriate antimicrobial prophylaxis is:

A. none.
B. oral ciprofloxacin.
C. oral trimethoprim-sulfamethoxazole.
D. I.V .ceftriaxone.
E. I.V. vancomycin.

","B","This patient underwent prosthetic joint replacement less than two years prior to a stone manipulation procedure - SWL. According to the AUA Antimicrobial Prophylaxis Best Policy Statement, the antimicrobial prophylaxis should be either single dose oral fluoroquinolone or intravenous ampicillin-gentamicin combination.

134. A 54-year-old man with metastatic clear cell RCC is currently receiving sunitinib. During therapy, he should have monitoring of his serum:

A. thyroid stimulating hormone and T4.
B. testosterone.
C. cholesterol.
D. cortisol.
E. transaminases.

","A","Hypothyroidism has been reported in 36% to 46% of patients who took sunitinib in prospective studies. A higher incidence (53% to 85%) has been reported in studies containing both retrospective and prospective data. The mean time to onset of hypothyroidism after initiation of sunitinib therapy ranged from 12 to 50 weeks. The risk of development of hypothyroidism appears to increase with the increasing duration of sunitinib therapy, and the condition is likely reversible once therapy has been discontinued .Baseline thyroid function tests should be performed before the initiation of sunitinib treatment. Because hypothyroidism can develop early in the course of therapy, thyroid function tests should be monitored frequently throughout the duration of treatment. Possible mechanisms for thyroid dysfunction include impaired thyroid hormone synthesis, a destructive thyroiditis preceding the development of hypothyroidism, and increased thyroid hormone clearance. If

hypothyroidism is identified, levothyroxine therapy should be promptly initiated. Sunitinib does not affect testosterone, cholesterol, cortisol or liver function.

135. A seven-year-old girl has urgency, frequency, and daytime urinary incontinence. She is wet every day, requiring clothing changes twice daily. Physical exam and urinalysis are normal. She is placed on oxybutynin 5 mg bid and timed voiding. She returns two weeks later and reports no change in the daytime urinary incontinence. The next step is:

A. MRI scan of the lumbosacral spine.
B. add imipramine.
C. videourodynamics.
D. voiding diary.
E. urethral dilation.

","D","Daytime urinary incontinence occurs in 5% of seven-year-old children. In most children, the underlying problem is infrequent voiding. Timed voiding programs alone will be successful in the majority of children but require several months to be effective. This child has not had enough time to determine if the program will be effective. Changing to another medication or proceeding with urodynamic evaluation at this time is premature. Urethral dilation is not indicated for the treatment of daytime urinary incontinence. Some authors have suggested that an occult tethered cord is responsible for persistent daytime urinary incontinence. However, imaging of the spine should be reserved for those children with significant abnormalities on neurologic exam or urodynamic evaluation.

136. A 50-year-old woman has irritative, obstructive voiding symptoms, and urge incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6 ml/sec, peak detrusor voiding pressure of 45 cm H2O, a silent external sphincter, and minimal opening of the bladder neck during voiding. PVR is 150 ml. Examination reveals no cystocele. Cystoscopy is normal. The next step is:

A. antimuscarinic therapy.
B. biofeedback.
C. urethral dilation.
D. alpha-blocker therapy.
E. transurethral incision of bladder neck.

","D","This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy. The urodynamic test showing a high pressure void of 45 cm H2O coupled with increased PVR is most consistent with bladder outlet obstruction. There are four common causes for anatomic outlet obstruction in a woman, a cystocele (bladder prolapse), a prior bladder neck sling, external striated sphincter dyssynergia, and bladder neck obstruction. Another cause of bladder outlet obstruction is an increased tone of the striated muscle pelvic floor (including external urethral sphincter). Given that this patient has not had previous anti-incontinence surgery and that the external sphincter is silent and the bladder neck minimally opens during voiding, the level of obstruction is at the bladder neck. Antimuscarinic therapy is contraindicated in patients with increased PVR. Biofeedback is useful in patients with pelvic floor spasticity, which this patient does not have. Urethral dilation has no effect on the bladder neck. A trial of medical therapy with an alpha-blocker is indicated. If not successful in relieving symptoms and/or decreasing PVR, incision of bladder neck is indicated.

137. A 55-year-old woman underwent cystectomy and urinary diversion three years ago. Her serum electrolytes are: Na 140 mEq/l, K 3.4 mEq/l, Cl 140 mEq/l, CO2 15 mEq/l. Her urinary diversion is most likely a(n):

A. ileal conduit.
B. jejunal conduit.
C. ileocolic pouch.
D. cutaneous ureterostomy.
E. ureterosigmoidostomy.

","C","Metabolic complications may result from interposition of intestine in the urinary tract. These generally result from altered urinary solute reabsorption by the intestine. This patient has a hyperchloremic metabolic acidosis with associated mild hypokalemia. This is typical of diversion options that utilize ileum and colon. The mechanism is due to the ionized transport of ammonium. The exchange of the weak acid, NH4, for a proton is coupled with the exchange of bicarbonate for chloride. Ammonium chloride is absorbed across the intestinal lumen into the blood in exchange for carbonic acid (i.e., CO2 and water). This is most likely to occur when urine is in prolonged contact with the bowel or if a long bowel segment is used. Electrolyte disorders resulting from jejunal interposition (particularly, proximal segments) in the urinary tract include hyponatremia, hypochloremia, hyperkalemia, azotemia, and acidosis. When stomach is used, a hypochloremic, hypokalemic metabolic alkalosis may ensue. Patients undergoing ureterosigmoidostomy may also experience metabolic acidosis, but this is generally associated with a profound hypokalemia.

138. A 16-month-old boy is treated for dehydration. He has had no diarrhea or vomiting. He has been drinking excessively over the past several months. The serum sodium is 152 mEq/l. The urine specific gravity is 1.003 and the urine osmolality is 500 mOsm/kg. He is treated with parenteral fluids. The next step is:

A. head CT scan.
B. renal ultrasound.
C. overnight fluid restriction.
D. desmopressin (DDAVP).
E. salt-restricted diet.

","C","This clinical scenario suggests diabetes insipidus. Infants should undergo overnight fluid restriction in a hospital setting. Body weight and vital signs are monitored until three percent of body weight is lost or the urine osmolality is > 600 mOsm/kg. If this does not produce a concentrated urine, fluid is restricted on another day and desmopressin is administered. If the renal response to desmopressin is normal, central DI (head CT scan) should be investigated. Salt restriction is not helpful in patients with diabetes insipidus as the primary defect involves free water handling. Renal ultrasound yields no useful information for acute management in this scenario.

139. Food with high potential renal acid load (PRAL) includes:

A. milk.
B. cheese.
C. yogurt.
D. fruit.
E. vegetables.

","B","Low urinary pH predisposes to uric acid and calcium oxalate stones. Dietary acid load correlates with increased risk for stone formation. While cheese has one of the highest potential renal acid load (PRAL), milk and yogurt are less acidic and convey only a slight PRAL. The only foods with a net negative PRAL (alkaline load) are fruits and vegetables and should be encouraged in patients with stone disease. While dairy intake is encouraged to decrease the risk of enteric hyperoxaluria, cheese should be de-emphasized as the primary source.

140. A 68-year-old diabetic man has a 1 cm left proximal ureteral non-invasive, high grade urothelial carcinoma. His serum creatinine is 0.9 mg/dl. Abdominal CT scan is otherwise normal. The next step is:

A. ureteroscopic tumor ablation, stent placement ،and intravesical BCG instillation.
B. percutaneous resection and antegrade BCG.
C. left partial ureterectomy.
D. left ureterectomy with Boari flap.
E. left radical nephroureterectomy.

","E","Standard therapy for patients with upper tract urothelial carcinoma involving the proximal ureter is nephroureterectomy. Endoscopic treatment of patients with upper tract urothelial carcinoma is generally recommended in those patients with a solitary kidney, bilateral disease, renal dysfunction, or significant intercurrent illness that precludes a major abdominal procedure. Endoscopic management may also be appropriate in selected patients with small, low-grade lesions in the presence of a normal contralateral kidney. However, most series suggest that recurrence is likely even with frequent reinspection and that progression to invasive disease occurs in a significant number of patients, depending on the stage and grade of the initial tumor. Open ureteral resection risks tumor spillage as well as recurrence. This patient has a normal contralateral right kidney. A recent large, multi-institutional examination of nephrouterectomy and ipsilateral lymph node dissection did not reveal any survival advantage for patients treated with node dissection with earlier stage upper tract malignancy as is the case with this patient. However, in patients with T2-T4 primary tumors, pathologic N0 patients did have a longer cancer-specific survival than pathologic Nx patients.

141. A one-day-old girl with spina bifida undergoes back closure and one week later has placement of a ventriculoperitoneal shunt. Following catheter removal, she voids with a moderate residual. Credé maneuver is started. Eight hours later, she develops abdominal distension and has minimal urine output. The bladder is catheterized for 3 cc. The next step is:

A. fluid bolus.
B. plain film of the abdomen.
C. cystogram.
D. abdominal/pelvic CT scan.
E. laparotomy.

","C","Forceful expression of the over-distended bladder in the neonate, cystoscopy, inguinal hernia repair, and umbilical vessel catheterization are the most common causes of iatrogenic injuries to a child's bladder and may on rare occasions in association with VUR result in forniceal rupture. Although the Credé maneuver is used less commonly, it can be employed in infants who do not empty their bladders completely. However, the Credé voiding is contraindicated in children with a reactive external sphincter and should not be initiated in children with spinal bifida until they have been assessed with urodynamics. The Credé

maneuver stimulates a reflux response in the external sphincter that increases urethral resistance, thereby increasing the pressure needed to expel urine from the bladder. Bladder rupture has occurred and VCUG will be diagnostic in most cases. Fluid bolus is unnecessary because there is no reason to suspect volume depletion and may delay diagnosis. Although plain film of the abdomen and CT scan without delay imaging may be suggestive of ascites, they are not diagnostic. CT cystogram is acceptable but results in excessive radiation exposure. Laparotomy is not indicated until a diagnosis is made.

142. Performance sports drinks may increase urinary:

A. sodium.
B. citrate.
C. calcium.
D. uric acid.
E. oxalate.

","B","Performance sports drinks may increase urinary citrate and pH; lending a protective effect against urinary lithogenicity. However, these drinks have a high fructose and total carbohydrate content, so they should not be recommended as the primary means of hydration for stone formers. Though the sodium content may be high in these drinks, they do not lead to hypernatruria. Sports drinks have no effect on urinary calcium, oxalate, and uric acid.

143. A 55-year-old asymptomatic man with a serum PSA of 5.0 ng/ml has a normal DRE. TRUS is normal and prostate biopsy reveals Gleason 3+3 adenocarcinoma in two biopsy cores from the left base and two biopsy cores from the right apex. The remaining biopsies show benign prostate tissue. According to the 2010 AJCC TNM classification, the clinical T stage is:

A. cT1b.
B. cT1c.
C. cT2a.
D. cT2b.
E. cT2c.

","B","Clinical staging is determined by DRE and TRUS, and is not influenced by biopsy location information. This is a common clinical mistake by practicing urologists. The correct clinical stage is cT1c since it is a PSA diagnosed lesion with a normal physical examination and a normal ultrasound. If he had a small nodule on physical examination or consistently present on ultrasound (or other imaging) he would be cT2a. If the nodule was bilateral his clinical stage would be cT2c. If he has a radical prostatectomy, his most likely pathologic stage will be pT2c since his disease is bilateral on biopsy.

144. A ten-day-old boy with a transverse colostomy performed for a high imperforate anus has a serum Cl of 115 mEq/l, Na of 145 mEq/l, K of 4.5 mEq/l, and CO2 of 17 mEq/l. The most likely explanation for these findings is:

A. sepsis.
B. renal dysplasia.
C. severe hydronephrosis.
D. neurogenic bladder dysfunction.
E. electrolyte absorption from large bowel.

","E","Genitourinary anomalies associated with an imperforate anus are common. The most common GU anomalies are; vesicoureteral reflux found in 40%, renal agenesis 25%, renal ectopy in 25%, rectourethral or rectal vaginal fistula in 20-30%, neurogenic bladder in 15-25%, and a tethered spinal cord in 2-8%. The latter three, rectourethral fistula, neurogenic bladder, and tethered spinal cord are more frequently found in patients with a high or supra levator imperforate anus. When a rectourethral fistula exists, urine can flow into the colon leading to electrolyte resorption and recurrent UTIs even following placement of a diverting colostomy. If the electrolyte dysfunction is severe, consideration for a vesicostomy may be necessary to correct the acidosis. Intermittent catheterization in children with an active urethral rectal fistula is problematic, with the fistula acting as a false channel.

145. A 35-year-old man with azoospermia and normal genetic testing desires a biological child. Testosterone is 275 ng/dl, LH is 28 IU/l and FSH is 15 IU/l. Both testes are 3 cm in length and soft. The next step is:

A. clomiphene citrate.
B. hCG.
C. scrotal ultrasound.
D. cranial MRI scan.
E. microsurgical testicular sperm extraction.

","E","With FSH greater than 7.6 IU/l and testis axis less than 4.6 cm, the probability of non-obstructive azoospermia is 89%. Neither clomiphene citrate nor hCG is effective in a patient with highly elevated LH, as clomiphene acts to increase LH secretion and hCG is an LH surrogate. Scrotal ultrasound would not reveal more than that identified on physical examination. As the pituitary is responding appropriately to low serum testosterone, MRI is not indicated. The only chance of a biological child for this patient with non-obstructive azoospermia would be testicular sperm extraction for intracytoplasmic sperm injection.

146. A 63-year-old woman with metastatic clear cell RCC and a poor performance status has a serum calcium of 11 mg/dl and a hemoglobin of 8 g/dl. The most appropriate treatment is:

A. interferon.
B. bevacizumab.
C. sunitinib.
D. sorafenib.
E. temsirolimus.

E","Temsirolimus is an inhibitor of the mammalian target of rapamycin (mTOR) kinase. This is a component of intracellular signaling pathways involved in growth/proliferation of cells. The medication suppresses angiogenesis and is given as a weekly I.V. infusion. Patients with three or more poor risk factors respond better to mTOR inhibitors than other currently used medications. Risk factors include: serum LDH > 1.5 times upper limit of normal, hemoglobin below lower limit of normal, serum calcium level of more than 10 mg/dl, time from initial diagnosis of RCC to randomization of less than one year, Karnofsky performance of 60 or 70, or metastases in multiple organs. This patient is considered poor risk and patients who received this regimen were 27% more likely to survive when compared to patients receiving interferon alpha alone. This medication is FDA-approved for advanced RCC. In addition bevacizumab, sunitinib and sorafenib have not been proven to have a survival benefit in this

high risk subset of patients. Interferon has not demonstrated a consistent survival advantage in the management of metastatic RCC.

147. A vascular pedicle of the omentum is preferentially based on which artery when using an omental flap for repair of a vesicovaginal fistula:

A. right gastroepiploic.
B. left gastroepiploic.
C. superior mesenteric.
D. gastric.
E. splenic.

","A","An omental flap should be preferentially based on the right gastroepiploic artery. The pedicle is mobilized off the stomach from the left. This will result in a well-vascularized and sufficiently long flap based on the right gastroepiploic. The right gastroepiploic is a larger vessel than the left, and its origin is somewhat caudal as compared to the left allowing a shorter course into the deep pelvis.

148. The indication for sperm viability testing is:

A. sperm density < 5 million sperm per ml.
B. sperm motility < 5%.
C. Kallmann syndrome.
D. Klinefelter syndrome.
E. presence of anti-sperm antibodies.

","B","Flagellar defects result in motilities of less than 5% - 10%. In these samples most of the non-motile sperm are viable. Most cases of ultrastructural flagellar defects are associated with normal sperm densities. Kallmann syndrome is associated with hypogonadotropic hypogonadism and resultant azoospermia not motility defects. Klinefelter syndrome is associated with azoospermia, not motility defects. Antisperm antibodies may result in low motility but the non-motile sperm are non-viable.

149. A 76-year-old asymptomatic man has castrate-resistant prostate cancer. Bone scan is normal but CT scan of the pelvis demonstrates two new, enlarged pelvic lymph nodes. The next treatment is:

A. sunitinib.
B. zoledronic acid.
C. denosumab.
D. cabazitaxel.
E. sipuleucel-T.

","E","This patient has asymptomatic castrate-resistant prostate cancer. The potential next steps are docetaxel chemotherapy or immune therapy with sipuleucel-T. Both are FDA-approved in this clinical situation. Sipuleucel-T is an active cellular immunotherapy that is a type of therapeutic cancer vaccine. It consists of autologous peripheral blood mononuclear cells with antigen presenting cells that have been activated ex vivo with a recombinant fusion protein that consists of prostatic acid phosphatase that is fused to granulocyte-macrophage colony-stimulating factor (an immune-cell activator).In men with asymptomatic or minimally

symptomatic castrate-resistant prostate cancer, a 4.1 month median overall survival benefit was demonstrated compared to placebo. This patient has asymptomatic castrate-resistant prostate cancer with soft-tissue disease. Sunitinib is a tyrosine kinase inhibitor and although FDA-approved for kidney cancer, it has not been approved by the FDA for men with prostate cancer. Zoledronic acid is an I.V. bisphosphonate indicated for patients with metastatic castrate-resistant prostate cancer with bony sites of disease. It has been demonstrated to decrease pain as well as skeletal-related events. No survival advantage has been demonstrated. Although it has been studied for men on long term androgen deprivation therapy, this patient has been on therapy for only six months. Denosumab is a RANK-ligand inhibitor and also decreases skeletal-related events and helps to prevent skeletal-related events associated with osteoporosis. Cabazitaxel is FDA-approved for patients with metastatic castrate-resistant prostate cancer who have failed docetaxel. This patient has not had any chemotherapy. Although not listed, docetaxel is FDA-approved agent for men with castrate-resistant prostate cancer and may be an appropriate next treatment.

150. A 12-year-old boy has severe dysuria and hematuria. Ultrasound shows a bladder mass and mild right hydronephrosis. Urine culture is sterile. Cystoscopy shows a diffuse, erythematous, bullous mass at the bladder base. Biopsy shows intense inflammation, granulomatous reactions and an eosinophilic infiltrate. The best management is:

A. laser fulguration.
B. corticosteroids.
C. long-term antibiotics.
D. TUR of lesion.
E. cystectomy and diversion.

","B","This patient has eosinophilic granulomatous cystitis. It usually presents as a mass-like lesion with irritative symptoms and hematuria. It may be mistaken for a neoplastic process, but is benign and self-limited. If the lesion is focal with minimal symptomatology, observation is appropriate. Patients with focal lesions may also be managed with laser fulguration or TUR. In diffuse lesions, resection is not indicated. Both antihistamines and steroids may aid in relieving symptomatology. Steroids have been reported to relieve symptoms faster although direct statistical comparisons are not available. Unless infection is also present, there is no need to treat with antibiotics. The process is non-specific and often idiopathic, although consideration for a causative condition is necessary; e.g., schistosomiasis in a patient at risk.

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